N080-630 ERIC REPORT RESUME

ED 010 037 9-02-66 24 (REV)
COMPARISON OF READING APPROACHES IN FIRST-GRADE TEACHING WITH DISADVANTAGED CHILDREN. (THE CRAFT PROJECT)
HARRIS, ALBERT J. * SERWER, BLANCHE L.
OGF48320 CITY UNIV. OF NEW YORK RESEARCH FOUNDATION
CRP-2677
OGF48286 CITY UNIV. OF NEW YORK, DIV. OF TEACHER EDUCATION
- -66
EDRS PRICE MF-$0.27 HC-$6.04 151P.

*DISADVANTAGED YOUTH, *READING INSTRUCTION, *TEACHING METHODS, *EFFECTIVE TEACHING, *BEGINNING READING, FIRST GRADE, COMPARATIVE ANALYSIS, READING PROCESSES, URBAN YOUTH, SKILLS, LANGUAGE AIDS, AUDIOVISUAL AIDS, PHONOLOGY, NEW YORK

THE RELATIVE EFFECTIVENESS OF THE SKILLS-CENTERED APPROACH AND THE LANGUAGE-EXPERIENCE APPROACH TO TEACHING READING TO DISADVANTAGED URBAN CHILDREN IN THE FIRST GRADE WAS EXAMINED, AND METHODS COMPARED. APPROXIMATELY 50 TEACHERS AND 1,150 STUDENTS MADE UP THE PROJECT SAMPLE. TYPES OF DATA GATHERED INCLUDED PRETEST AND POST-TEST SCORES OF THE PUPILS AND INSTRUCTIONAL TIME LOGS, CLASSROOM OBSERVATIONS, AND PREFERRED READING APPROACHES FROM THEIR TEACHERS. PROJECT RESULTS SHOWED THAT THE DISADVANTAGED CHILD CAN LEARN TO READ BY THE SAME METHODS THAT ARE USED WITH MIDDLE AND UPPER-CLASS CHILDREN. AMONG THE FOUR METHODS USED, THE BASAL READER METHOD, EMPLOYED WITH THE SKILLS-CENTERED APPROACH, APPEARED TO BE THE IDEAL APPROACH. THE OTHER METHODS WERE THE BASAL READER METHOD WITH PHONOVISUAL WORD RECOGNITION AND TWO LANGUAGE-EXPERIENCE APPROACHES WITH AND WITHOUT AUDIO VISUAL SUPPLEMENTATION. DIFFERENCES AMONG THE METHODS WERE SUFFICIENTLY SMALL AS TO BE INCONCLUSIVE. CONTINUATION AND REPLICATION STUDIES WERE PLANNED. (JH)

U. S. DEPARTMENT OF HEALTH, EDUCATION AND WELFARE
Office of Education
This document has been reproduced exactly as received from the person or organization originating it. Points of view or opinions stated do not necessarily represent official Office of Education position or policy.

COMPARISON OF READING APPROACHES IN FIRST-GRADE TEACHING WITH DISADVANTAGED CHILDREN

(THE CRAFT PROJECT)

Cooperative Research Project No. 2677

Albert J. Harris, Director
Blanche L. Serwer

The Research Foundation of The City University of New York

for and on behalf of

The Office of Research and Evaluation
The Division of Teacher Education
The City University of New York
535 East 80 Street
New York, New York 10021

1966

The research reported herein was supported by the Cooperative Research Program of the Office of Education, U. S. Department of Health, Education, and Welfare

CRAFT

COMPARING READING APPROACHES IN FIRST-GRADE TEACHING

<table>
<tr><th colspan="2">Skills-Centered Approach
24 Classes</th></tr>
<tr><td>I
Basal Reader Method
12 Classes</td><td>II
Basal Reader Method with Phonovisual Word Recognition
12 Classes</td></tr>
</table>

<table>
<tr><th colspan="2">Language-Experience Approach
24 Classes</th></tr>
<tr><td>III
Language-Experience Method
12 Classes</td><td>IV
Language-Experience Method with Audio-Visual Supplementation
12 Classes</td></tr>
</table>

Two Major Approaches Subdivided into Four Experimental Methods

Total No. of Classes: 48

ACKNOWLEDGMENTS

The CRAFT project depended for its success on the combined efforts and talents of many people.

Gratitude is expressed to the members of the Executive Advisory Committee, who participated in the early deliberations which resulted in the inauguration of the Project, and remained available to clear the way for its effective administration. Deep appreciation is felt also for the contribution of the Project Advisory Committee, who met periodically with the research staff, gave freely and effectively of their profound experience in their areas of excellence, and helped to decide many important questions about the research design; their active participation was essential to the Project.

Executive Advisory Committee

Dr. Harry N. Rivlin, Dean of Teacher Education, The City University of New York
Dr. W. Virgil Nestrick, Associate Dean of Teacher Education, The City University of New York
Dr. John B. King, Deputy Superintendent of Schools, Board of Education of the City of New York
Dr. Joseph O. Loretan, Deputy Superintendent of Schools, Board of Education of the City of New York
Miss Truda T. Weil, Acting Associate Superintendent of Schools, Elementary Division, Board of Education of the City of New York
Dr. J. Wayne Wrightstone, Acting Associate Superintendent for Research, Board of Education of the City of New York
Mrs. Helene M. Lloyd, Assistant Superintendent assigned to Elementary Education, Board of Education of the City of New York

Project Advisory Committee

Dr. J. Wayne Wrightstone, Acting Associate Superintendent for Research, Board of Education of the City of New York
Mrs. Helene M. Lloyd, Assistant Superintendent assigned to Elementary Education, Board of Education of the City of New York
Dr. Samuel D. McClelland, Acting Director, Bureau of Educational Research, Board of Education of the City of New York
Dr. Joseph Justman, Acting Director, Bureau of Educational Program Research and Statistics, Board of Education of the City of New York
Dr. Edward G. Bernard, Director, Audio-Visual Instruction, Board of Education of the City of New York
Mrs. Rebecca Winton, Director, Early Childhood Education, Board of Education of the City of New York
Dr. William Rabinowitz, Associate Professor of Education, The City University of New York

The cooperation of teachers, supervisors, consultants, administrators, and research staff was necessary for the development of the methodologies under scrutiny in the study. School personnel had to become research-minded, and research staff to become aware of the problems and procedures of the classroom.

Special tribute is due to the seven consultants who gave freely of their expert knowledge, experience and time, who deliberated frequently, supervised teachers thoughtfully and helped guide effectively a massive, many-faceted research project through its numerous vicissitudes.

Reading Consultants

Evelyn Farrar, District No. 13, Manhattan
Anne Goldstein, District No. 27, Brooklyn
Alma Kelly, District No. 32, Brooklyn
Ruth Lavin, District No. 50, Queens

Early Childhood Consultant

Paula Zajan

Audio-Visual Consultant

Stanley Leibman

Liaison Consultant, Elementary Division

Mary Sendek

For their deep interest and constant attention to the joint development of the Language-Experience-Audio-Visual variable, gratitude is expressed to Dr. Edward Bernard, Director, and to Dr. Morris Freedman, Assistant Director, of the Bureau of Audio-Visual Instruction of the Board of Education of the City of New York (BAVI).

Profound gratitude is expressed to school personnel--to the 48 teachers who exhibited flexibility, devotion, and above all, warmth and concern for the needs of their young charges in the CRAFT project; to the 12 principals and to their assistants who, in the welter of duties pertinent to supervising large schools in congested urban ghettos, attended to the many details requisite to the smooth functioning of CRAFT; and to the district superintendents who contributed their wisdom, experience, and support.

Teachers *

Abigail Ain
Esther Anker
Frances Arthur
Mary Atherly
Marsha Beyda
Ida Blakeman
Julieann Brennan
Clarice Brown
Charlotte Butler
Florence Combes
Frances Cohen
Josephine Coppolino
Francine Deitsch
Elsie DeSandies
Edna Egan
Anne Falcier
Arlene Bergman Goldberg
Doris Goldenberg
Carolyn Uhrbach Grajales
Mollie Greenberg
Anita Grosnas
Naomi Gutman
Doris Heida
Victoria Hill
Wilhelmina Jenkins
Lesley Rose Kantor
Sandra Kantrowitz
Susan Krimsky
Joan Kreisl
Marcia Beck Loner
Catherine McEvoy
Ann Morris
Georgia Parker
Rosemary Parker
Mary Pfeiffer
Lilyan Postal
Helen Prager
Paula Kaplan Prizant
Andrenna Ramsey
Mary Reynolds
Faith Drogin Salzberg
Susan Schoenthal
Linda Eisenberg Seeman
Gail Friedman Simon
Sylvia Taylor
Helen Weiss
Carole White
Elsie Wilkin
Barbara Yellowitz
Ruth Younger
Adrienne Zelesnick

District Superintendents

Mr. Maurice Mehlman, District No. 27, Brooklyn
Mrs. Elizabeth O'Daly, District No. 32, Brooklyn, from June to September, 1964
Dr. Sidney Rosenberg, District No. 13, Manhattan, from September, 1964, to the present
Dr. Louise Ryan, District No. 50, Queens
Dr. Charles Shapp, District No. 13, Manhattan, from June to September, 1964
Dr. Abraham Tauchner, District No. 32, Brooklyn, from September, 1964, to the present

---

* This list includes some teachers who were in the project for part of the year only.

School Principals

Dr. Samuel Altman, P. S. 305, Brooklyn
Mr. Jesse Barbash, P. S. 136, Queens
Mr. Carl Berg, P. S. 309, Brooklyn
Dr. Lee Cottrell, P. S. 186, Manhattan
Miss Catherine Dooley, P. S. 116, Queens
Miss Eudice Gansberg, P. S. 44, Brooklyn
Mr. Erwin Kaufman, P. S. 123, Manhattan
Mr. Emmanuel Loeb, P. S. 28, Brooklyn
Mr. Julius Nislow, P. S. 93, Brooklyn
Mr. Eugene Roberts, P. S. 160, Queens
Mr. Marvin Schwartz, P. S. 45, Queens
Mr. Carl Toporoff, P. S. 137, Brooklyn

Assistants to Principals

Mr. Robert Berger, P. S. 305, Brooklyn
Mrs. Anne Broude, P. S. 186, Manhattan
Mrs. Vernella D'Arbeau, P. S. 123, Manhattan
Mr. Seymour Friedman, P. S. 137, Brooklyn
Mr. Bernard Lenahan, P. S. 116, Queens
Mr. Elias Emanuel, P. S. 93, Brooklyn
Miss Cecile Graves, P. S. 28, Brooklyn
Mrs. Hazel Schreiber, P. S. 160, Queens
Mr. Samuel Solow, P. S. 44, Brooklyn
Mr. Harry Weintraub, P. S. 136, Queens
Mr. Lawrence Wolsky, P. S. 45, Queens
Mrs. Sylvia Friedman, P. S. 309, Brooklyn

Concerning the research staff working in the offices of The City University, deep gratitude is felt for their unstinting devotion to the vast number of details inherent in collecting and analyzing the data of a sophisticated research design:

Statistical Staff: Dr. Maurice Lohman, Project Statistician
Genaro Lachica
Paul Barbuto, Programer

Research Assistants: Lawrence J. Deutsch
Lou H. Smith
Kenneth M. Brelesky
Sharon Geier
Aliki Porihi
Raquel Teitel

Consultants: Dr. Donald M. Medley
Dr. Eve J. Malmquist
Dr. Benjamin Wright

Project Secretary: Selma Miller

Special thanks are extended to Professor Rosedith Sitgreaves of Teachers College, Columbia University, for her help in solving difficult problems in the statistical analysis.

Appreciation is expressed to Mrs. Priscilla Pereira, Librarian of the Division of Teacher Education of The City University for her gracious assistance in assembling pertinent literature, to Mrs. Beatrice Tausek for the competent typing of the completed report, and to Mrs. Diana Kee for her gracious clerical assistance.

Thanks are proffered to the numerous publishers who contributed examination copies as a basis for selection of books, and to those who made their materials available at reduced cost to accommodate the CRAFT budget.

In closing, may we express warm appreciation to the one indispensable group of participants in CRAFT, the children who were the subject of our research. We hope they enjoyed and benefited from this concentration of effort upon them.

Albert J. Harris, Project Director

Blanche L. Serwer, Project Assistant Director

CONTENTS

Chapter		Page
I	THE PROBLEM	1
	The Disadvantaged in Education	1
	Local Concern	1
	The Methods Chosen for Study	2
	Experimental Controls	5
II	RELATED RESEARCH	7
	Beginning Reading for the Disadvantaged	8
	References	10
III	PROCEDURES	12
	The Schools	12
	The Pupils	20
	The Teachers	22
	The Program for the Year	27
	Experimental Precautions	32
	The Teaching Methods	38
IV	THE TEACHING METHODS	39
	The Teacher Training Program	39
	The Basal Reader Variable	42
	The Phonovisual Variable	44
	The Language Experience Variable	46
	The Language Experience, Audio-Visual Variable	50
V	RESULTS	57
	The Pretest Results	57
	Results of the Outcome Measures	63
	Consideration of Possible Interfering Variables	85

CONTENTS (Cont.)

Chapter		Page
VI	DISCUSSION OF THE RESULTS AND THEIR IMPLICATIONS	98
	Need for Caution in Interpreting the Results	98
	Comments on the Teaching Methods	101
	Tentative Implications of the Results	102
	Differences in Teacher Effectiveness	105
	Possible Generalization of the Results	106
VII	SUMMARY AND CONCLUSIONS	108
	Procedures	109
	Results	110

APPENDIX

A. Instructions to Teachers Concerning Log

B. Copy of Log Form

C. Log Analysis: How First-Grade Teachers Spend Their Time Teaching Language Arts to Disadvantaged Urban Children

D. Instructions for Recording Behavior with OScAR-R

E. Copy of OScAR-R Record Form

LIST OF TABLES

Table		Page
1	THIRD GRADE METROPOLITAN READING TEST MEDIAN SCORES	13
2	MEDIAN INCOME AND EDUCATION FOR CENSUS TRACTS IN WHICH THE SCHOOLS ARE LOCATED	14
3	ASSIGNMENT OF METHODS TO SCHOOLS	15
4	PUPIL LOSS BY SCHOOLS AND BOROUGHS	19
5	MEANS, MEAN PERCENTILE RANK, AND STANDARD DEVIATIONS OF READING READINESS SUBTEST SCORES OF THE CRAFT CHILDREN, OCTOBER, 1964	21
6	PRE-FIRST GRADE SCHOOL EXPERIENCE	22
7	AGE, TOTAL TEACHING EXPERIENCE, AND FIRST-GRADE TEACHING EXPERIENCE, OF THE CRAFT TEACHERS	23
8	MEANS, MEDIANS, STANDARD DEVIATIONS, AND RANGES OF AGE OF TEACHERS BY VARIABLE	24
9	MEANS, MEDIANS, STANDARD DEVIATIONS, AND RANGES FOR TOTAL YEARS OF TEACHING EXPERIENCE BY VARIABLE	24
10	MEANS, MEDIANS, STANDARD DEVIATION, AND RANGES FOR YEARS OF FIRST-GRADE TEACHING EXPERIENCE BY VARIABLE	24
11	EDUCATIONAL LEVEL OF THE CRAFT TEACHERS IN EACH OF FOUR VARIABLES	25
12	MEANS AND STANDARD DEVIATIONS OF 48 TEACHERS ON THE THREE APPROACHES INCLUDED IN THE SAN DIEGO *TEACHER INVENTORY OF APPROACHES TO TEACHING OF READING*	26
13	MEANS AND STANDARD DEVIATIONS OF *TEACHER INVENTORY OF APPROACHES TO THE TEACHING OF READING* SCALES FOR TEACHERS ASSIGNED TO LANGUAGE-EXPERIENCE AND SKILLS-CENTERED TEACHING METHODS	26
14	PRETEST RESULTS FOR TOTAL FINAL POPULATION	57
15	PRETEST RESULTS FOR THE FOUR TEACHING METHODS	61
16	INTERCORRELATIONS AMONG FOUR PRETESTS	62
17	INTERCORRELATIONS BETWEEN PRETESTS AND POSTTESTS	63
18	ANALYSIS OF COVARIANCE, STANFORD WORD READING	64
19	ANALYSIS OF COVARIANCE, STANFORD PARAGRAPH MEANING	64
20	ANALYSIS OF COVARIANCE, STANFORD VOCABULARY	65

LIST OF TABLES (Cont.)

Table		Page
21	ANALYSIS OF COVARIANCE, STANFORD SPELLING	65
22	ANALYSIS OF COVARIANCE, STANFORD WORD STUDY SKILLS	65
23	ADJUSTED STANFORD RAW SCORE MEANS FOR THE TWO APPROACHES AND FOUR TEACHING METHODS	67
24	GRADE EQUIVALENTS OF ADJUSTED STANFORD MEANS FOR TWO APPROACHES AND FOUR TEACHING METHODS	68
25	ANALYSIS OF VARIANCE, STANFORD WORD READING	69
26	ANALYSIS OF VARIANCE, STANFORD PARAGRAPH MEANING	70
27	ANALYSIS OF VARIANCE, STANFORD VOCABULARY	70
28	ANALYSIS OF VARIANCE, STANFORD SPELLING	71
29	ANALYSIS OF VARIANCE, STANFORD WORD STUDY SKILLS	72
30	ANALYSIS OF COVARIANCE, GILMORE ACCURACY	73
31	ANALYSIS OF COVARIANCE, GATES WORD PRONUNCIATION	73
32	UNCORRECTED MEANS AND STANDARD DEVIATIONS FOR THE INDIVIDUAL READING TESTS, FOR FOUR TEACHING METHODS	73
33	CRITICAL RATIOS FOR DIFFERENCES AMONG METHODS ON INDIVIDUAL READING TESTS	75
34	UNCORRECTED MEANS FOR THE WRITING SAMPLE SCORES	77
35	ANALYSIS OF COVARIANCE, RESTRICTED WRITING SAMPLE, LUCIDITY	77
36	ANALYSIS OF COVARIANCE, UNIQUE WRITING SAMPLE, LUCIDITY	77
37	SIGNIFICANCE OF DIFFERENCES BETWEEN FULL-SESSION AND SPLIT-SESSION CLASSES, ADJUSTED STANFORD RAW SCORE MEANS	79
38	SIGNIFICANCE OF DIFFERENCES BETWEEN TWO APPROACHES, ADJUSTED RAW SCORE MEANS FOR FULL-SESSION CLASSES	80
39	SIGNIFICANCE OF DIFFERENCES BETWEEN BASAL READER AND PHONOVISUAL METHODS FOR FULL-SESSION CLASSES	80
40	SIGNIFICANCE OF DIFFERENCES BETWEEN LANGUAGE-EXPERIENCE AND AUDIO-VISUAL METHODS FOR FULL-SESSION CLASSES	81
41	ADJUSTED GRADE SCORE MEANS FOR FULL-SESSION CLASSES	82
42	RESULTS OF SAN DIEGO INVENTORY OF PUPIL ATTITUDE	84

LIST OF TABLES (Cont.)

Table		Page
43	PRETEST RESULTS FOR SAMPLES OF KINDERGARTEN AND NON-KINDERGARTEN CHILDREN	85
44	PERCENTAGES OF GIRLS AND BOYS FOR THE FOUR METHODS	86
45	SEX DIFFERENCES ON THE PRETESTS	87
46	INTERCORRELATIONS AMONG CLASS MEANS ON 54 VARIABLES	88
47	MEAN INSTRUCTIONAL TIME PER DAY IN FOUR TEACHING METHODS	91
48	MEANS AND STANDARD DEVIATIONS FOR SELECTED TEACHER VARIABLES	93

Chapter I

THE PROBLEM

The Disadvantaged in Education

The big cities of the United States have experienced marked changes of population in the past 20 years. This is true not only of New York City, but also of Philadelphia, Chicago, Detroit, Los Angeles and other major cities. A major factor has been the movement of hundreds of thousands of Negroes from the South into various parts of the North. The development and expansion of crowded, run-down Negro ghettos has created unprecedented problems for public education.

Many of the children growing up in these neighborhoods have not done well in school. They have been variously described as culturally deprived, educationally disadvantaged, or culturally different. It is not uncommon for the median reading ability in the seventh grade of schools in these neighborhoods to be two years or more below the national norms. Retardation in reading ability serves as a major barrier to success in most other areas of the curriculum.

The Negro children living in the big-city ghettos probably form the largest group of seriously disadvantaged children in this country.

Within the past five years, interest in improving the education of the disadvantaged has greatly intensified. Currently the effort to upgrade the schooling of disadvantaged children forms one of the main efforts of the War on Poverty.

Local Concern

New York City has an increasing proportion of Negro children who enter the first grade inadequately prepared to begin formal schooling. Many thousands fail to make appreciable progress in reading during the first grade.

The staff of the Board of Education of the City of New York are determined to improve the education of disadvantaged children. They have designated the elementary schools which have high proportions of disadvantaged pupils as Special Service Schools, and have allocated to these schools special facilities such as extra allotments of counselors, remedial teachers, and child guidance services.

The Division of Teacher Education of the City University of New York is intensely interested in the problems of urban education and in the preparation of teachers for urban schools. The Office of Research and Evaluation, a unit of the Division of Teacher Education, was authorized in January, 1964, to expand its program of research in urban education.

In response to an announcement which the U. S. Office of Education issued in the Fall of 1963, inviting proposals for first-grade reading research studies, a preliminary draft of the proposal for the present study was prepared in the Office of Research and Evaluation and was submitted to the staff of the Board of Education of the City of New York for consideration. It was warmly welcomed. Several superintendents and directors agreed to serve on the advisory committees, and contributed greatly to the detailed plans.

The Methods Chosen for Study

The central comparison in this study of first-grade reading methods is between the Skills-Centered Approach and the Language-Experience Approach. The Skills-Centered Approach emphasizes the need for order, structure, and built-in repetition. Skills are introduced in specific sequence, the vocabulary is carefully controlled, and the teacher is provided with detailed lesson plans. The Language-Experience Approach emphasizes the need for self-expression through the use of the child's oral language as a basis for beginning reading materials. His experiences provide a basis for concept-building, language enrichment and vocabulary development. Out of the discussion of these experiences, chart stories are developed and used for reading and writing, for skills instruction, and for drill. The transition to book reading is gradual and individualized.

Each of these two main approaches was further divided into two teaching methods, or variables. The Skills-Centered Approach was subdivided into Variable I, Basal Reader Method, and Variable II, Basal Reader Method with Phonovisual Word Recognition. The Language-Experience Approach was subdivided into Variable III, Language-Experience with customary use of audio-visual aids, and Variable IV, Language-Experience with Audio-Visual Supplementation. In the research design, these four methods were treated as four separate experimental variables. A brief description of each of the four methods is given below. More thorough presentations of these teaching variables will be found in Chapter IV.

Variable I. Skills-Centered Approach: Basal Reader

The great majority of American schools utilize basal readers in the primary grades. A basal reader is a highly structured, eclectic teaching program. The vocabulary is carefully selected, introduced gradually, and reviewed systematically. Each book is accompanied by a teachers' manual which gives detailed plans for each lesson, even suggesting specific wording for the teacher to use. An effort is made to give balanced attention to comprehension and word recognition skills. The skills program is further developed through the use of workbooks that are closely correlated with the readers.

When this project was being planned a series of basal readers called the City Schools Reading Program was in process of publication. Written by staff of the Detroit Public Schools, they were to stress urban environments and multi-ethnic characters. The first preprimers had been published in 1962 and a preliminary evaluation, published in November, 1963, was quite favorable.[1] The original plans of CRAFT were to use these basal readers.

Fortunately, we learned on June 30, 1964, that many items in the City Schools series would not be available in time for our use; this gave us enough time to choose an alternative. The reading consultants were called to an emergency meeting and reported that the basal readers already installed in their CRAFT schools were as follows: Scott, Foresman series, six schools; Harper and Row series, four schools; Ginn Basic Readers, two schools. In the opinion of the consultants and research staff these series were sufficiently alike in content and methodology to justify considering the use of the three series to be a single teaching method. Each school was to use the series it had, being sure to provide the teacher with the full materials (readers, manuals, workbooks, and word and phrase cards).

---

[1] Whipple, Gertrude. Appraisal of the City Schools Reading Program. Detroit: Detroit Public Schools, Language Education Department, 1963.

Variable II. Skills-Centered Approach: Phonovisual Method with Basal Reader

The Phonovisual Method is a highly structured way of teaching word attack skills, with a teacher's manual, large consonant and vowel charts for use with groups, smaller charts for use by individual pupils, several workbooks, and a book of games. It is designed to be used in conjunction with any basal reader series. In the 12 CRAFT Phonovisual classrooms, the sections of the basal reader manual dealing with the teaching of phonic and structural analysis of words were omitted, and in their place a separate Phonovisual word attack lesson was given each day.

Variable III. Language-Experience Method

The Language-Experience Approach is one in which emphasis is placed on the teaching of reading in close correlation with the related language-arts activities of listening, speaking, and writing. Children are encouraged to express their thoughts, ideas, and feelings, often stimulated by a specific experience guided and developed by the teacher. The verbal productions of the children are written down by the teacher in the early stages, and are used as the earliest reading materials. Pupil expression is encouraged through the use of a variety of media such as painting, speaking, and writing. Gradually the program moves from exclusive use of reading material which is developed out of the oral language of the children, into a program of reading in which increasing emphasis is placed upon a variety of children's books.

Variable IV. Language-Experience Method with Audio-Visual Supplementation

Since in the Language-Experience Method both real and vicarious experiences can be utilized, audio-visual procedures seemed a promising way to supplement the limited real-life experiences of these children. Audio-visual procedures could be used in a variety of ways: to record experiences for later recall and discussion, to present new material with high vividness and attention-attracting impact, to provide correlation of listening with watching, etc.

The Bureau of Audio-Visual Instruction of the New York City Schools provided several thousand dollars worth of audio-visual equipment for the twelve Language-Experience-Audio-Visual teachers, and assigned a member of their staff to work half-time with the CRAFT Project, working out plans for the use of audio-visual techniques in cooperation with the reading consultants, training the Language-Experience-Audio-Visual teachers in the use of these techniques, making a photographic record of the four teaching methods, etc.

Aside from the use of a greater variety of audio-visual procedures and the effort to integrate them with the language arts teaching, the Language-Experience-Audio-Visual teachers followed the same practices as the other Language-Experience teachers.

Experimental Controls

The director of this project participated in the meetings held in March, 1964, and June, 1964, under the auspices of the U. S. Office of Education, and agreed to adhere to the requirements set for the research studies that were to be part of the cooperative study of reading in the first grade. The same pretests would be used as in the other studies, with the exception of group intelligence tests which were not allowed to be given in the public schools of New York City. The same reading tests would be used as final tests, after the same period of 140 days. Uniform practices in collecting, coding, and recording data common to all projects were agreed upon. Techniques to minimize or eliminate irrelevant factors that would tend to favor one or another method were carefully worked out.

Details of these precautions can be found in the chapter on Procedures.

Specific Objectives

The major questions to be studied were:

1. Does a significant difference in reading achievement exist between groups taught by Skills-Centered and Language-Experience approaches?
2. Do pupil gains in reading under Skills-Centered teaching differ when the Basal Reader method is used as compared to the Phonovisual-Basal-Reader combination?
3. Do gains by pupils given Language-Experience teaching depend on the amount of audio-visual enrichment?
4. Do any of these methods of teaching tend to produce greater pupil gains in some skill areas than in others?
5. Does the amount of success a teacher has with a method depend on how faithfully she uses it?

The following minor questions were also listed for investigation:

6. What measure, or combination of measures, obtained at the beginning of the first grade is the best predictor of achievement in reading for this population?
7. What characteristics of books determine pupils' reactions to them?
8. What is the relationship of experience, training, and other teacher characteristics to success in teaching reading by each method?

Chapter II

RELATED RESEARCH

The appearance each year of hundreds of books, periodical articles, and other contributions dealing with the teaching of reading makes a detailed summary of even part of this vast field a project far beyond the scope of a research report like this. Fairly comprehensive histories of reading instruction in the United States have recently been prepared by Fries (7) and Smith (15). A good deal of the research on the teaching of beginning reading has been summarized and analyzed by Chall (5). The methods currently in favor in most American first-grade classrooms have been described by the director of this project in two recent books (9,10).

A period of controversy concerning desirable practices in beginning reading instruction was started in 1955 with the widely popular Why Johnny Can't Read by Rudolph Flesch (6).

A special committee on Research in Reading was appointed by the National Conference on Research in English. This committee had the opportunity to engage in two extended face-to-face meetings, one in 1959, and one in 1960. The committee agreed that the area of beginning reading instruction was a major area needing further research. There was quite general agreement among the committee members that the research evidence then available was sufficiently vague, contradictory, incomplete, and faulty in design and execution to allow a wide range of conflicting interpretations to be drawn. The committee developed a schema of the controls that satisfactory research in this area should require, and proposed that large-scale cooperative experiments should be planned and carried through to compare different approaches to beginning reading systematically and with overlapping and replication of variables.

The present study is one of a group of cooperative studies supported in part by the Cooperative Research Branch of the U.S. Office of Education. Invitations to submit proposals were made public by the Office of Education in the fall of 1963. By March 1, 1964, a large number of proposals had been submitted. In June the 27 projects selected for support were announced.

Each project was to receive an amount up to but not exceeding $30,000, and was expected to find local financial resources to take care of additional expenses.

Beginning Reading for the Disadvantaged

There is essentially no good controlled research on the relevance of the general methods of teaching beginning reading to meeting the specific educational needs of culturally disadvantaged children.

According to Riessman, the disadvantaged person tends to have a strong preference for traditional education in contrast to progressive education, which he firmly rejects. "Certainly, it must be said, there are a fair number of progressive-minded teachers who, in stressing vivid, example-centered lessons, have been successful with deprived children. But on the average, it is the old-style, strict, highly structured teacher who appears to be most popular and effective with underprivileged children. . . The traditionalist contributes structure, rules, discipline, authority, rote, order, and strong external demands for achievement." (14, p.72)

It was decided that the contrast suggested by Riessman, between an approach emphasizing structure, rules, rote and order, and one stressing a "progressive" approach with emphasis on ego-building and enrichment of experience and language, would provide the major comparison in the study.

The Harvard-Carnegie and Columbia-Carnegie surveys have recently revealed that the vast majority of first-grade teachers in this country teach reading with a series of basal readers; the percentage doing so runs well over 90 (3,4). Accordingly, no defense needs to be made of the inclusion of the use of basal readers in a research study on beginning reading. As was pointed out in Chapter I, our original intention was to utilize a new series of basal readers written specifically for use with non-white disadvantaged children. However, delays in the publication of that series made it necessary to switch to standard basal readers at almost the last moment.

The superintendent of schools of Washington, D. C., a city with a very high proportion of Negro children in its public schools, has come out very strongly for a skills-centered approach. As described by Hansen in The Amidon Elementary School (8), the beginning reading method is a combination of basal readers with systematic teaching utilizing the Phonovisual method, a published phonic system. The Phonovisual teaching takes place in a separate period each day, and the teacher is instructed to disregard the word-attack lessons in the manuals for the basal readers. At the time the variables for the present study were being selected, information was received that this combination had been adopted city-wide in Washington, D. C., and therefore it seemed reasonable to select this as a second skills-centered method of instruction. While many other methods stressing skills teaching were available, this particular one was the only one for which we were able to find evidence of large-scale tryout with disadvantaged children.

The Language-Experience Approach has been used in various forms since at least as early as the 1890's (11). It has been described in detail in a recent book by Lee and Allen (12). A variation of this method is described by Ashton-Warner in the books Spinster and Teacher (1,2). Miss Ashton-Warner's experience had been in the teaching of young Maori children in New Zealand. Her descriptions of the Maori children and their behavior in school showed many resemblances to the behavior of disadvantaged non-white children in urban schools in the United States. The teachers assigned to the Language-Experience Approach were encouraged to read the books by Lee and Allen and Ashton-Warner, and were given mimeographed excerpts of some of the most significant passages in those books.

A project in the utilization of audio-visual aids in primary grade classes had been conducted under the auspices of the Bureau of Audio-Visual Instruction of the New York City schools. Informal evaluation of the results obtained had been quite favorable, and the director of BAVI expressed a strong interest in further exploration of the possibilities in the utilization of audio-visual procedures in beginning reading instruction. Accordingly, it was decided that one-half of the teachers in the Language-Experience Approach would be given special supplementary audio-visual equipment and supplies, and would be taught how to utilize this equipment by a consultant assigned by the Bureau of Audio-Visual Instruction.

In addition to successful local informal tryout, the use of film-strips as a way of enriching experience and making reading easier has been supported by the research of Witty (17). The use of film-strips particularly to reinforce the first-grade program has also been strongly advocated by McCracken (13).

REFERENCES

1. Ashton-Warner, Sylvia. Spinster. New York: Simon and Shuster, 1959.
2. Ashton-Warner, Sylvia. Teacher. New York: Simon Shuster, 1963.
3. Austin, Mary C. and Coleman, Morrison. The First R: The Harvard Report on Reading in Elementary Schools. New York: The Macmillan Company, 1963.
4. Barton, Allen H. and Wilder, David. Columbia-Carnegie Study of Reading Research and Its Communication, in Figurel, J. Allen (ed.) Challenge and Experiment in Reading. International Reading Association Conference Proceedings. New York: Scholastic Magazines, 1962, 7, 170-176.
5. Chall, Jeanne S. Learning to Read; The Great Debate: An Inquiry Into the Science, Art, and Ideology of Old and New Methods of Teaching Children to Read, 1910 to 1965. Final Report of The City College-Carnegie Reading Study (1962-1965). New York: The City College of The City University of New York, 1965.
6. Flesch, Rudolph. Why Johnny Can't Read and What You Can Do About It. New York: Harper and Brothers, 1955.
7. Fries, Charles C. Linguistics and Reading. New York: Holt Rinehart and Winston, 1962.
8. Hansen, Carl F. The Amidon Elementary School. Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1962.
9. Harris, Albert J. How to Increase Reading Ability, Fourth Edition. New York: David McKay Co., 1961.
10. Harris, Albert J. Effective Teaching of Reading. New York: David McKay Co., 1962.
11. Harris, Albert J. "Progressive Education and Reading Instruction," The Reading Teacher, November, 1964, 18 (2), 128-138.
12. Lee, Doris M. and Allen, R. Van. Learning to Read Through Experience, Second Edition. New York: Appleton-Century-Crofts, 1963.

13. McCracken, Glenn. The Right to Learn. Chicago: Henry Regnery Co., 1959.

14. Riessman, Frank. The Culturally Deprived Child. New York: Harper and Row, 1962.

15. Smith, Nila B. American Reading Instruction, New Edition. Newark, Delaware: International Reading Association, 1965.

16. Whipple, Gertrude. Appraisal of the City Schools Reading Program. Detroit: Detroit Public Schools, Language Education Department, 1963.

17. Witty, Paul and Fitzwater, James P., "An Experiment with Films, Film-Readers, and the Magnetic Sound Track Projector," Elementary English, April, 1953, XXX, 232-41.

Chapter III

PROCEDURES

The Schools

Selection of Schools

The purpose of the CRAFT study, namely the determination of the relative effectiveness of various methods in teaching first-grade Negro disadvantaged urban children to read, necessitated setting down specific criteria for selection of schools. These criteria, established at meetings of the Project Advisory Board on March 12, and later revised, were formalized in the following list:

1. A Special Service school.[1]
2. Minimally 85% non-white population in first grade.
3. A minimum of five classes and a maximum of nine classes in the first grade.
4. Assurance of full cooperation from the district superintendent and the school principals.
5. Willingness of at least four first-grade teachers to take part in the study.

Schools fitting these criteria appeared to be concentrated in five school districts: two in the central Harlem section of Manhattan, two in the Bedford-Stuyvesant section of Brooklyn, and one in the South Jamaica section of Queens.

The final selection included 11 schools which fitted the criteria completely and only one, School I (See Table 1), which was not listed as a Special Service school. The presence in this school of a considerable number of foster children justified considering many of its pupils "disadvantaged." Nevertheless School I was the least disadvantaged of the schools.

---

[1] Designation of Special Service Schools, based on established practice, involved evaluation by a committee of assistant superintendents according to five criteria (weighted to make a total of 100):

1. Average reading grade.
2. Per cent of pupils on free lunch.
3. Pupil mobility.
4. Per cent of pupils with language handicaps.
5. Per cent of teachers on permanent license.

I.Q., previously a criterion, did not enter the consideration during the year 1964-65.

In order to protect the anonymity of the schools, a letter code will be substituted throughout this report for school designations.

In the schools thus selected, cultural and economic deprivation had resulted in depressed reading scores, with a lag of one-half year to over a year in each school by the end of the third grade. Table 1 provides the mean reading achievement scores in Word Knowledge and Comprehension near the end of the third grade on the most recent citywide survey available when the selection was being made.

TABLE 1

THIRD GRADE METROPOLITAN READING TEST MEDIAN SCORES

School	Word Knowledge	Comprehension
A	3.1	3.3
B	2.7	2.8
C	2.5	2.6
D	2.8	3.0
E	2.7	2.7
F	2.9	2.9
G	2.8	2.9
H	2.6	2.7
I	3.5	3.4
J	3.1	3.2
K	2.8	3.0
L	3.3	3.3

Although considerable differences were apparent among the schools in the project, all were faced with the problem of reading retardation associated with deprivation in ghetto areas.

The population selected to participate in the CRAFT project was limited to low socio-economic Negro ghetto areas in Harlem, Bedford-

Stuyvesant, and South Jamaica. Table 2 indicates the median income and median education of each school neighborhood, as extracted from the 1960 Census Tract data. It is evident that there is a considerable range in both income and education, with School I again the highest.

TABLE 2

MEDIAN INCOME AND EDUCATION FOR CENSUS TRACTS IN WHICH THE SCHOOLS ARE LOCATED

School	Median Annual Income	Median Education Attained
A	$3,576	10.2
B	3,147	9.0
C	3,335	8.9
D	3,731	8.7
E	1,980	8.8
F	3,918	9.1
G	4,328	8.6
H	4,040	9.0
I	7,035	11.5
J	3,744	9.0
K	4,976	9.1
L	4,975	9.4

Assignment of Methods to Schools and Classes

Each of the twelve schools was to have four classes in the project, two in one of the Language-Experience methods and two in one of the Skills-Centered methods, a total of 48 classes. The possible combinations of methods were: Language-Experience with Phonovisual; Language-Experience with Basal Reader; Audio-Visual with Phonovisual; and Audio-Visual with Basal Reader. Each method would be present in 12 classes, two in each of six schools.

TABLE 3

ASSIGNMENT OF METHODS TO SCHOOLS

METHODS	SCHOOLS												TOTAL CLASSES
	A	B	C	D	E	F	G	H	I	J	K	L	
I. BR		XX	XX			XX	XX		XX	XX			12
II. PH	XX			XX	XX			XX			XX	XX	12
III. LE	XX		XX		XX		XX		XX			XX	12
IV. AV		XX		XX		XX		XX		XX	XX		12
TOTAL CLASSES	4	4	4	4	4	4	4	4	4	4	4	4	48

Note: Each school had two classes assigned to each of two methods, making a total of 12 classrooms per methods.

The need for random assignment was explained to the principals and accepted by them. At a meeting in May, 1964, each of the reading consultants drew lots for the pair of variables for each school in her district. At a subsequent meeting of the first-grade teachers in June, 1964, the four teachers in each school drew lots for assignment to one or the other of the two variables in that school. Thus the variables were assigned to schools, and to teachers within each school, by a randomized procedure. These assignments are shown in Table 3.

Pupil Assignment to Variables

Information obtained from the Advisory Committee and from the school principals indicated that all of the schools had previously employed some form of ability grouping in the first grade. The kindergarten children were rated by their teachers and these ratings were used to place them in a number of "homogeneous" classes. Children entering in September without kindergarten experience were usually placed in other classes, which were expected to make slower progress.

At planning meetings with the principals, the research need for randomizing the assignment of pupils to variables was stressed, and the principals agreed to forego ability grouping in the project classes. Their request to set up separate classes for kindergartners and non-kindergartners was adopted in the schools where each of the two variables could have two classes of kindergartners and two classes of children without kindergarten experience. Since the latter children usually did not register for school until September, special planning was necessary to insure random assignment of the non-kindergarten children to classes.

The plan was to assign pupils to classes from the entire kindergarten population within each school by means of a table of random numbers. Any two of these randomized classes could then be included in the CRAFT project as the two with kindergarten experience. The children without kindergarten experience would be assigned to other classes, also by a table of random numbers, as they registered for the first grade, and any two of these non-kindergarten classes could be used to complete the contingent of four CRAFT classes. One kindergarten class and one non-kindergarten class were to be assigned to each of the two variables operating in the school. A sufficient number of children with and without kindergarten experience was available in eight schools to accommodate the kindergarten-no kindergarten dichotomy; in four schools, this dichotomy was not feasible.

Because it was well into June before the CRAFT research staff could begin its work, preliminary class assignments had already been made in most of the schools. The CRAFT plan necessitated reorganization of the classes coming from the kindergartens. At meetings held with the principals and district superintendents, some objections were raised. Plans adapted to the special situations in specific schools, but maintaining the principle of random assignment between the two variables in the school, were worked out in consultation with Dr. Donald Medley.

1. In Schools A and B, every seventh name on the kindergarten list was assigned to CRAFT classes.
2. Schools C, D, E, F and H sent their total kindergarten registers to our office and we assigned them according to a table of random numbers.
3. School G siphoned off two "top" classes and then, by a head-tails procedure, assigned the remaining children to the two assigned variables. This school was the only one where randomization from the whole population was not effectively controlled by the research staff.
4. School C placed 20 of their slowest pupils (as subjectively rated by kindergarten teachers) into a separate class before sending the rest of the names to the research office for randomization.
5. The principals of Schools I, J, K and L felt that because of the high degree of mobility in their districts, it would be preferable to assign the classes randomly in September. None of these schools expected to have enough children without kindergarten experience to provide two full non-K classes. Thus, these four schools did not have the kindergarten, non-kindergarten dichotomy; children with and without kindergarten experience were randomized into the classes from the total population of the first grade in September.
6. The principal of School I, the only non-Special Services school in the project, was permitted to siphon off two classes from the top of his kindergarten distribution. It was expected that the remaining children would more closely resemble the population in the other schools in the project.

Number of Pupils

The original number of children in the 48 classrooms at the start of school, September, 1964, was approximately 1,700. By October 19th, when the pretests were completed, the number was reduced to 1,378, both by transfer to other schools and by dispersal to new classrooms. By posttest time, the first week in June, 1965, a 17.2% loss (237 pupils) brought the experimental population down to 1,141 who took both pretests and posttests.

Class Size

The planners of this project felt that the results should be generalizable to comparable schools in New York City and other urban centers, and that it was better to have the participating classes representative of the current situation in the participating schools than to set them up in as ideal a fashion as possible. With regard to class size, the classes were to be of the same size as the other first-grade classes in their schools. As experimental children left the school, their places were filled in the same manner as vacancies in the non-experimental classes.

The size of classes in some of the schools--over 30 children in most schools, and over 35 for part of the year in some schools--was a surprise and a disappointment to the research staff. It had been expected that most classes would have fewer than 30 children. Nevertheless the principle of not making the project classes smaller than the other first-grade classes in the same school was maintained.

Although there was some variation in class size among schools, the classes assigned to the two variables within a school were kept approximately equal. While the number of experimental children varied from class to class by the close of the posttest program, the classes were kept up to size by adding newcomers to fill vacancies. For this reason the number of experimental pupils per class is not a true measure of class size. The difference between experimental and instructional class size is a measure of mobility of the pupil populations.

Table 4 shows the number of children who completed the pretests, the number who took both pretests and final tests, and the number who left the school between the two testings. The number lost fluctuated from school to school, but on the whole was considerably smaller than we had anticipated, with a 17.2% loss overall. The Manhattan population had the largest loss (25%) and Queens the least (12.8%), with Brooklyn in between.

TABLE 4

PUPIL LOSS BY SCHOOLS AND BOROUGHS

School	Number of Children		
	Pretest	Posttest	Loss
A	122	89	33
B	110	84	26
C	110	90	20
D	101	80	21
E	99	80	19
F	126	102	24
G	102	88	14
H	115	102	13
I	137	114	23
J	114	98	16
K	119	105	14
L	123	109	14
Total	1,378	1,141	237
Per cent of Loss:	Queens	12.8%	
	Brooklyn	17.0%	
	Manhattan	25.4%	
	Total	17.2%	

Classes with Four-Hour Days

One of the irrelevant factors that could influence the results, and that was not subject to experimental control, was the fact that in some schools of New York City overcrowding requires that certain grades have split sessions (two sessions of four hours each), instead of the full five-hour day consisting of a three-hour morning session, lunch period, and a two-hour afternoon session. Because population shifts in the disadvantaged neighborhoods in which the project schools were located are sometimes unpredictable, several of the principals were unable to inform the research staff in the Spring of 1964 whether their first grades in 1964-65 would be on four-hour or five-hour days. Since there were not enough extra schools which met the selection criteria and were located within the chosen districts to replace all of the doubtful schools, it was decided to keep those schools in the study.

It turned out that three of the twelve schools had their first-grade classes on four-hour days. The CRAFT classes in these schools all were in the morning shift. In each school, two classes were in one of the Language-Experience variables and the other two were in one of the Skills-Centered variables. Three of the four variables had some four-hour classes; one did not.

It will, therefore, be necessary in the analysis of results to check on whether achievement in the three four-hour schools was affected by the shortened school day, and if necessary to control for this factor statistically.

The Pupils

Pretest Scores of CRAFT Children

Pretest measures were analyzed to ascertain the readiness of the CRAFT children in comparison with the general population. Percentile ranks of the means of the readiness subtest scores were computed.

Table 5 shows the Means, and the Percentile Rank of the Means, according to test norms.

TABLE 5

MEANS, MEAN PERCENTILE RANK, AND STANDARD DEVIATIONS OF READING READINESS SUBTEST SCORES OF THE CRAFT CHILDREN, OCTOBER, 1964

Test	Means	Percentile Rank of Means	SD
Murphy-Durrell Phonemes[1]	9.200	1	8.580
Murphy-Durrell Cap + Low[1]	18.971	23	15.549
Murphy-Durrell-Cap[1]	10.399	20	8.858
Murphy-Durrell-Low[1]	8.272	23	7.218
Murphy-Durrell Learning Rate	7.392	34	4.489
Metropolitan Word Meaning	5.043	12[2]	2.398
Metropolitan Listening	6.585	20[2]	2.655

[1] Due to errors of administration, the scores on these subtests were invalidated for some entire classes.

[2] Estimated by using areas under the normal curve and the means and standard deviations given for the subtests.

Analysis of this data indicates that the mean pretest scores of children in the CRAFT Project ranged between the first and 34th percentiles according to test norms. In auditory discrimination of phonemes, knowledge of letter names, and comprehension of word and phrase meanings orally presented, the CRAFT children all clustered in the lowest quartile, with particular depression in the Phonemes test. It seems highly significant that the mean score in the Phonemes subtest ranked at only the first percentile according to the test norms. The higher mean score (34th percentile) in Learning Rate indicates potential learning ability considerably above the attained development of the pupils in the perceptual, conceptual, and language modalities.

Preschool Experience

The amount of preschool experience of the CRAFT children is shown in Table 6.

TABLE 6

PRE-FIRST GRADE SCHOOL EXPERIENCE

Variable	No K or Pre-K Experience		21-100 Half Days		Full Kindergarten		Kindergarten Plus	
	No.	%	No.	%	No.	%	No.	%
I. B.R.	101	34.8	17	5.86	162	55.9	9	3.10
II. PH.	89	31.4	8	2.82	178	62.9	7	2.47
III. L.E.	86	29.9	5	1.74	189	65.6	8	2.78
IV. L.E.-A.V.	86	30.9	15	5.40	166	59.7	11	3.96
Totals	362	31.88	45	3.96	695	61.0	35	3.08

The large proportion of children who had no kindergarten or prekindergarten experience of any kind (31.88%) or a minimal amount of pre-first-grade experience (3.96%), adds to the general picture of cultural deprivation of the CRAFT population, considering that free public kindergartens were available to all. About two-thirds of the children had had full kindergarten, or kindergarten plus other preschool experience. The differences among the four variables were small and not significant.

The Teachers

Selection of Teachers

The orientation of the research staff toward the selection of teachers was that: (1) it was desirable to have a representative sample of the total teacher population of the city as regards age, number of years of experience, education, effectiveness, etc.; (2) it was desirable to have participation in the project voluntary rather than mandatory or pressured; and (3) assignment of teachers to teaching methods would be on a random or chance basis.

Within each of the schools selected, the principal was asked to enlist four volunteer first-grade teachers for the project. It was anticipated that people who voluntarily undertook to work in a research project would be flexible and willing to change their ways of teaching to suit the assigned variable. Each teacher was to be paid $200 for the substantial amount of after-school time that participation would involve. This eased the recruitment problem considerably. Ease of recruitment into the project varied from school to school, and in several schools, changes were made even after the first training session in June. One school changed its entire roster of project teachers as late as September, 1964.

Teacher Characteristics

The 48 teachers who finally made up the roster varied in age, total number of years of experience, number of years of first-grade experience, educational level, and prior approaches to reading toward the experimental methods proposed in the CRAFT project. The large variation is shown in the following tables.

TABLE 7

AGE, TOTAL TEACHING EXPERIENCE, AND FIRST-GRADE TEACHING EXPERIENCE OF THE CRAFT TEACHERS

	Range	Median	Mode	Mean	S.D.
Age (years)	21-66	27.0	24.0	35.2	12.7
Total number years teaching exper.	0-40	4.5	1.0	7.92	9.62
Total number years first-grade teaching exper.	0-29	2.0	1.0	3.83	5.22

Despite the wide range of age and years of teaching experience as indicated in Table 7, CRAFT teachers tended on the whole to be young and inexperienced, as shown by the median age of 27 and the modal age of 24, the median of 4.5 years of teaching experience and the modal number of 1.0 year teaching experience. Ten teachers had had only one year's experience, two were first-year teachers, while three had 30 or more years of experience.

After random assignment of teachers to the four variables, the comparisons among the four groups of twelve teachers each are shown in Tables 8, 9, and 10. Table 8 shows the results for Age; Table 9, for Total Years of Teaching; Table 10, for Years of First-Grade Teaching. In all of these there was wide variability within each group. The differences in means between the groups, however, are not significantly different, according to one-way analyses of variance (Table 8, F = 0.82; Table 9, F = 1.07; Table 10, F = 1.10).

TABLE 8

MEANS, MEDIANS, STANDARD DEVIATIONS, AND RANGES
OF AGE OF TEACHERS BY VARIABLE

Variable	N	Mean	Median	S.D.	Range
I. B.R.	12	31.42	24.5	13.24	21-57
II. PH.	12	35.08	25.5	15.42	21-59
III. L.E.	12	40.17	40.5	13.46	23-58
IV. A.V.	12	34.25	26.5	15.89	21-66
Totals	48	35.23	27.0	12.74	21-66

TABLE 9

MEANS, MEDIANS, STANDARD DEVIATIONS, AND RANGES
FOR TOTAL YEARS OF TEACHING EXPERIENCE
BY VARIABLE

Variable	N	Mean	Median	S.D.	Range
I. B.R.	12	3.83	2.5	3.10	1-9
II. PH.	12	8.33	5.0	9.63	0-30
III. L.E.	12	9.25	5.0	9.25	1-30
IV. A.V.	12	10.25	5.0	13.10	0-40
Totals	48	7.92	4.5	9.62	0-40

TABLE 10

MEANS, MEDIANS, STANDARD DEVIATIONS, AND RANGES
FOR YEARS OF FIRST-GRADE TEACHING EXPERIENCE
BY VARIABLE

Variable	N	Mean	Median	S.D.	Range
I. B.R.	12	2.17	2.0	1.32	1-4
II. PH.	12	2.83	1.5	3.24	0-10
III. L.E.	12	3.83	3.0	3.73	0-14
IV. A.V.	12	5.92	2.5	9.28	0-29
Totals	48	3.69	2.0	5.22	0-29

Educational Level of Teachers

The educational level of the 48 participants, presented in Table 11, showed considerable variation, ranging from three who lacked a bachelor's degree to four who had credit beyond a master's degree. The majority had bachelors' degrees and some graduate work. The spread in each variable is large.

TABLE 11

EDUCATIONAL LEVEL OF THE CRAFT TEACHERS IN EACH OF FOUR VARIABLES

Variable		Less Than B.A.	B.A.	B.A.+	M.A.	M.A.+	Total
I.	B.R.	0	4	7	0	1	12
II.	PH.	0	2	8	1	1	12
III.	L.E.	1	1	8	0	2	12
IV.	A.V.	2	3	5	2	0	12
All 4 Variables		3	10	28	3	4	48

For the purpose of measuring teacher practice at the beginning of the project, the Teacher Inventory of Approaches to the Teaching of Reading, prepared by the Reading Study Project Committee of the San Diego County Department of Education, had been selected by the directors involved in the Cooperative Research Program. This questionnaire was administered to the CRAFT teachers as they entered the first session of the training workshop in September, 1964.

Table 12 shows the scores of the CRAFT teachers on the three parts of the Inventory: (1) Basic Approach, represented by the basal reader method, used in Basal Reader and Phonovisual variables; (2) Language-Experience Approach, represented by the beginning stages of reading in our Language-Experience variables; and (3) Individualized Approach, represented by the later stages of reading in our Language-Experience variables.

The results shown in Table 12 indicate that as the CRAFT teachers entered the project, they tended as a group to score significantly higher on the Basic scale than on Language-Experience ($p<.01$) and Individualized scales ($p<.05$). There was an insignificant difference between the Language Experience and Individualized means, both of which are aspects of the Language-Experience variables in the current project.

TABLE 12

MEANS AND STANDARD DEVIATIONS OF 48 TEACHERS ON THE THREE APPROACHES INCLUDED IN THE SAN DIEGO TEACHER INVENTORY OF APPROACHES TO TEACHING OF READING

Approach	Means	S. D.	t of differences		p
a) Basic	43.31	5.77	(a,b)	2.08	< .05
b) Individual	39.96	5.37	(b,c)	.79	N.S.
c) Language-Exp.	38.48	7.39	(a,c)	2.60	< .01

The San Diego Inventory does not provide scales to differentiate between the two Language-Experience variables or between the two Skills-Centered variables of the CRAFT project. Table 13 shows the scores for the teachers assigned to Skills-Centered variables as compared to those of the teachers assigned to Language-Experience variables. In both groups the Basic score was highest. The differences between the two groups are small in comparison to the variabilities and are not statistically significant.

TABLE 13

MEANS AND STANDARD DEVIATIONS OF TEACHER INVENTORY OF APPROACHES TO THE TEACHING OF READING SCALES FOR TEACHERS ASSIGNED TO LANGUAGE-EXPERIENCE AND SKILLS-CENTERED TEACHING METHODS

San Diego Scale	Skills-Centered Mean	S.D.	Lang.-Experience Mean	S.D.	t	
Basic	44.75	4.69	41.88	6.36	1.74	N.S.
Individualized	39.79	6.04	40.12	3.97	0.22	N.S.
Lang.-Exper.	36.92	7.90	40.04	6.51	1.47	N.S.
	(N = 24)		(N = 24)			

The Program for the Year

Uniform Readiness Period

The first 20 school days were planned to be uniform for all variables, and to be devoted to the development of readiness. This was necessary for several reasons. Several of the schools did not have their first-grade classes organized until the end of September. Many of the children, especially the one-third who had not had any kindergarten experience, needed basic training in classroom behavior.

At the all-day workshop session before school opened, the early childhood consultant discussed the importance of developing readiness in disadvantaged children and provided specific suggestions about activities that would be appropriate in all classrooms during the uniform readiness period. Further help in developing reading readiness activities was given in the weekly teacher workshop sessions.

Oral language was encouraged; reading and writing were not to be started. Setting up routines was the focus of much oral communication. Rules were established for use of the block shelf, the library corner, the science corner, the painting area. Discussion also engendered much interest in specific books, further browsing and picture reading of a large number of trade picture books. Favorite stories and nursery rhymes were dramatized, using puppets and flannelboard. Talk centered around the neighborhood, and walking trips were arranged to different kinds of stores, public libraries, police stations and fire stations. Auditory discrimination was developed by a variety of listening activities oriented to science, music and language content. The use of colored materials, picture puzzles, etc. gave practice in visual discrimination, enriched concepts and stimulated verbalization. During this non-reading but very verbal readiness period, development of skills was limited to realia; no rexographed sheets or readiness books were permitted. Telephones, records, radios, magnets, trucks and numerous other objects were used to enhance both conceptualization and verbalization.

The Pretesting Program

The pretesting program could not adhere completely to that decided upon for all cooperating projects, because the Board of Education had prohibited the use of group intelligence tests such as the Pintner-Cunningham. In addition, the difficulty of some of the tests and the length of the total pretest program dismayed the consultants, who strongly urged a briefer battery. In order to provide adequately for comparisons both between variables in this study and between this project and other first-grade studies in the Cooperative Research Program, a slightly reduced pretest program was carried out. It included the following:

Murphy-Durrell Diagnostic Reading Readiness Test (Experimental Form)
    Phonemes
    Letter Names - Capitals
    Letter Names - Lower Case
    Learning Rate
Thurstone Pattern Copying
Thurstone Identical Forms
Metropolitan Readiness Tests
    Word Meaning
    Listening

Scheduling of the testing program was a complicated process. In twelve schools, in three widely separate parts of the city, tests had to be administered almost simultaneously to 48 classes, each of which was divided into two groups for testing. Each of these 96 groups was given eight tests, in four sessions.

To equalize variations in examiner skill between the two major approaches and to have the tests administered by persons whom the children were beginning to know, each of the four classroom teachers in a school was trained to give the tests that comprised one session. She gave these tests to all four classes (8 groups). Each teacher was assigned a proctor-observer, who was either a member of the CRAFT research staff, one of the five CRAFT consultants or a special teacher without a home-room assignment on the school's faculty.

The pretest administration took from October 1 through October 8, 1964. During this period, when the children were not taking tests, the teachers continued with the readiness program. Make-up tests were scheduled for October 15 to 27. Many children who had missed some of the subtests completed the testing during this period.

The testing period was a trying one for pupils, teachers and school administrators. The pupils had never been tested before, found it hard to understand and follow directions, and found the tests quite difficult and frustrating. School administrators worked with the research staff on scheduling the four testing teams with the eight pupil-groups, and making provisions for the four half-classes not being tested during each session. Occasional teacher absences complicated the scheduling problem. The teachers did not enjoy giving the same tests to eight groups of children. As a result, morale in the schools dropped sharply during the pretest program, and many complaints came to the research staff.

When the tests were scored, it was discovered that a small number of examiners had made errors in test administration which invalidated the pupil scores on some of the tests. For example, the Murphy-Durrell test of lower-case letters was completely overlooked in two schools. Another error, discovered only in the scoring, was failure to direct pupils to turn the page when a test was on more than one page. The research staff decided not to use scores on tests where the test blanks gave clear evidence of faulty administration, or the proctor-observers reported errors in administration serious enough to invalidate the results.

The tests were scored by a crew of college student assistants supervised by a research assistant, during the early part of the instructional period.

The Instructional Period

All teachers began their reading instruction on October 19, 1964, and continued for 140 school days to May 27, 1965. Details about the methodology employed by the teachers within each of the four variables can be found in Chapter IV of this report.

During this period, meetings of the consultants took place frequently, at first weekly, then bi-monthly, to clarify their own understanding of the details of the four teaching methods; to plan uniform workshop and supervisory activities; to solve problems in a uniform way; and to select appropriate books and materials for all four variables. The inservice workshop continued through the instructional period, at first once every week, later one session every two weeks. After twelve centralized sessions, inservice training sessions alternated between one monthly city-wide meeting for each variable and one monthly district meeting, led by the district reading consultants. The CRAFT assistant director made 24 all-day school visits, and the reading coordinators devoted minimally a half-day each week to the four CRAFT teachers in each of their CRAFT schools. Periodic meetings were held with the principals and district superintendents.

The research staff was busy throughout the instructional period. Each of four research assistants made two OScAR-R observations, about two months apart, in each of the 48 classrooms.* The teacher logs were checked and tabulated as they came in. Pretest scores were checked and entered on code sheets for later data punching. Census reports were checked for data on the school neighborhoods. Provisions were made for keeping track of the schools to which CRAFT children were being transferred. School arrangements and schedules for final testing were prepared. Considerable time went into preparing a proposal for continuing and replicating the study.

Final Testing Program

By agreement with the other first-grade reading projects in the Cooperative Research Program, final testing of the CRAFT children was scheduled to begin the day after the 140-day instructional period ended, namely on May 28; it continued for five school days, ending on June 4, 1965. Both group and individual tests were completed during this period; makeups for absentees were arranged for the week of June 7 to 11.

The group tests administered to all CRAFT children consisted of five subtests of the Stanford Achievement Test Primary Battery I: Word Reading, Paragraph Meaning, Vocabulary, Spelling, and Word Study; and the San Diego Inventory of Reading Attitude.

Individual tests were administered to a randomly selected group of four children in each CRAFT class, a total of 192 children: Gilmore Oral Reading Test, Fry Word Recognition List, Gates Word Recognition List, Karlsen Word Recognition List. These tests were administered by the district reading consultant to the sixteen children in each school.

In addition, two writing samples were elicited, one restricted to a stimulus established for all federal projects and the other stimulus unique to our project. Both writing samples were administered in class groups, to approximate the conditions for writing to which the children were accustomed. Exact instructions for administering the writing samples were distributed to the teachers, in order to keep variation down to a minimum. A copy of these instructions can be found in Appendix Only the compositions of the children tested individually were scored.

---

* For a description of OScAR-R and its use, see pp. 35 ff.

Scoring the writing samples presented a considerable number of problems. Of particular interest was the problem presented by the three scores required by the Cooperative Research Program: (1) the Mechanics Ratio Scale which resulted from computation of errors in punctuation, capitalization and paragraphing; (2) the total number of words spelled correctly; and (3) the total number of running words. According to this procedure, a child who had written a series of correctly spelled words making no real sense would receive a higher score than a child who had poured forth a creative piece, atrociously spelled. An attempt at solving this problem was made by adding a "lucidity" or "coherence" score ranging from 1 to 3, resulting from the judgment of three independent scorers. Another problem resulted from the fact that the criteria set down by the Cooperative Research Program included some skills which are not taught in the first grade in New York City, for example, comma before quotation marks and indentation for paragraphing. Nevertheless, CRAFT writing samples were scored as directed.

End of Year

The last inservice session of first-grade teachers was held on June 7. This "party" was planned as an opportunity for motivating the replication study and for consolidating knowledge about teaching methodology in each of the variables. A fairly extensive display of child-produced materials was arranged. The major part of the meeting was devoted to a series of colored slides showing selected, characteristic aspects of each method as developed in the CRAFT classrooms. These photographs had been taken by the audio-visual consultant, according to a planned list of scenes prepared at several consultants' meetings. Every CRAFT class was represented in the slide series and the teachers were delighted with the coordinated view of their work.

The closeness of the posttesting to the end of the school year made it difficult to complete the scoring, checking, recording, and punching of scores by the end of June. Accordingly one research assistant was employed in July to complete this stage of the work. The statistical analysis and writing of this report occupied the Fall, 1965 semester.

Experimental Precautions

Avoidance of Hawthorne Effect

Although one of the four methods of instruction--the Basal Reader method--came closest to the way most of the teachers had been teaching reading, strong efforts were made to avoid giving the teachers in that variable the idea that they were in a "control" group while the other methods were "experimental." Some of the precautions taken were: (1) all four methods were called "experimental"--the term "control group" was never used; (2) similar training programs were set up for all four variables; (3) similar programs of visitation and consultation by the consultants were set up for all four variables; (4) meetings which brought the teachers in the four variables together were included in the training program, as well as meetings by variables.

As a matter of fact, it was discovered that the Basal Reader method was partially new for the teachers assigned to it. Most of them had previously used a combination approach in which they used experience stories and language-experience procedures until a substantial part of the preprimer vocabulary had been learned, and then started the preprimers. Some of them had not paid much attention to the teachers' manuals--some had not even been supplied with manuals in the past. Several had never used the workbooks which were part of the basal reader series. Most of them had paid little or no attention to the suggestions for enrichment activities which were generally placed near the end of each lesson plan in the manual. So, for all of the teachers in this variable, teaching from the beginning of the first preprimer with close attention to the manual lesson plans, and utilizing the workbooks systematically, was at least partially a new method.

Despite these efforts, it became evident that the Audio-Visual and Phonovisual variables seemed to the teachers and principals to have more "glamor" than the other two variables. These were the two variables that received considerable amount of new equipment and supplies and special instruction in the use of these additions. There is some doubt, therefore, that the efforts to eliminate Hawthorne Effect were completely successful.

Equalization of Time: Teacher Logs

The research staff considered it of utmost importance that time spent in teaching by the four experimental methods be equalized, in order to eliminate a source of considerable uncontrolled variance. A Daily Teacher Log (see Appendix) was therefore designed to record total time spent on discussion, listening, reading and writing in Social Studies and Science as well as in the Language Arts. The total time allotted to this combination was established as three hours a day for the 9 five-hour schools and 2-1/2 hours a day in the 3 four-hour schools.

For teachers in the two Skills-Centered variables (Basal Reader and Phonovisual), the following use of time was requested:

	5 Hours	4 Hours
Language Arts - Total	120 min.	100 min.
Reading (3/4)	90 "	75 "
Other Language Arts (1/4)	30 "	25 "
Social Studies	30 "	25 "
Science and Health	30 "	25 "
Total	180 min.	150 min.

The teachers in the Language-Experience variables, with and without Audio-Visual supplementation, were asked to devote the same total time to the combination of Language Arts, Social Studies, and Science as the teachers in the Skills-Centered variables. Since, however, integration and mutual reinforcement of the language arts (listening, speaking, reading, and writing) was a basic concept of the language-experience approach, the balance of time between reading and the other language arts was left flexible.

Concerning audio-visual experiences, it was pointed out that these experiences are planned as part of the instructional program of Language Arts, Social Studies or Science. They should, therefore, be included in the time allotment unless specifically outside of the experimental variable, e. g., arithmetic.

When trips were made, time spent in preparation before the trip and in discussion and follow-up activities were counted in the relevant curriculum area, but time spent outside the classroom was not counted.

Number of Logs

Teacher Logs were recorded every day in November and December. At this point, the number of logs was reduced to five consecutive days a month, for two reasons: (1) the teachers expressed some resentment against recording every day; (2) the research staff judged that five a month would be adequate for the necessary statistical analysis concerning equalization of time. The teachers continued to submit logs through the month of May.

Of all the extra jobs that teachers in the project had to do, the one to which they objected most was keeping the log. After listening to their complaints, the log-keeping was cut to one week each month, for five months, starting with January. Most of the teachers dutifully filled out the logs.

Format of the Log

The following activities were included in the log:

Reading Activities:

Basal Reader Activity, Experience Chart, Sight Word Drill, Phonic Activity, Other Reading Activities (Specify)

Supportive Activities:

Story telling or reading (by teacher), Discussion, Writing, Audio-Visual activity, A-V with intermittent discussion, Dramatization, Art work with reading, Other Language Arts (Specify)

For Basal Reader and Phonovisual:

Social Studies, Science

The curriculum areas of Mathematics, Music, Art, and Play Activities were not counted in the project's time budget, even though some of the time spent in them involved verbal communication. It was assumed that time spent in these areas would be fairly well equalized among the variables and would therefore cancel out.

There is, of course, no way to verify the factual accuracy of the times entered by the teachers. On the other hand, the consultants had many discussions with the teachers on the use of time, and made many classroom visits. They found nothing to indicate that any teacher was intentionally misrepresenting her use of time in the logs. The log seemed to be quite useful as a kind of personal feedback device which kept the teacher aware of her use of time. Teachers who found that they were using too little time, or too much, tended to correct that in later days of the same week.

Checking, totalling, and doing statistical computations on the log forms proved to be a very time-consuming activity, absorbing a large amount of research assistant time. Nevertheless we believe that it was a worthwhile device that helped the teachers to come closer to uniformity in instructional time than they would have without it.

The OScAR-R

The presence on our staff of Donald M. Medley, who had been developing objective ways of recording teacher behavior for several years,[1] was responsible for the development of a new observational procedure which he named OScAR-R (Observational Scale and Rating--Reading).

OScAR-R had a two-fold purpose: (1) to provide some record of the degree to which teachers in the experiment implemented the variables assigned to them; (2) to procure information about similarities and differences in the behaviors of teachers assigned the same method. If such behaviors should affect the rate at which pupils learn to read, this information would be used in the analysis of the data to increase the precision of the methods comparisons.

The schedule had two sections, one printed on the front and the other on the back of a five-by-eight card. One side was called the "Static" section (OScAR Rs) and the other was called the "Dynamic" section (OScAR Rd). The Static section was designed to yield a description of the range and variety of activities and materials observed in the classroom, analogous to a still photograph. The Dynamic section, which focused on the verbal behavior of the teacher, was designed to yield a description of the pattern of teacher statements and of the verbal interchanges between teacher and pupils. The categories into which behaviors were coded on both sides were designed to involve only simple, nonevaluative discriminations which can be made by relatively unsophisticated observers after a brief period of training.

---

[1] Medley, Donald M., and Mitzel, Harold E., "Measuring Classroom Behavior by Systematic Observation," Chapter 6 in Handbook of Research on Teaching, edited by N.L. Gage. Chicago: Rand McNally and Co., 1963.

The basic unit of observation is a ten-minute period. During the first three minutes, behaviors are coded on the Static side. During the next seven minutes, behaviors are coded on the Dynamic side. Three ten-minute periods are included in each observation.

Visits were scheduled ahead of time, and teachers were requested to arrange their school days so that a language arts lesson would be in progress while the observer was in the classroom.

Dr. Medley, with the assistance of Lou Hicks Smith, worked out two sets of scoring keys intended to be useful in checking the degree to which there were real differences among the four variables. One was a set of a priori keys, based on a knowledge of what materials the teachers in each variable were supposed to be stressing. The other was a set of "empirical" keys, based on analysis of a fourth ten-minute set of observations. These keys were based on the three-minute "Static" part of the observation.

The "Dynamic" part of the record used a technique similar to those employed in previous OScAR's. Teacher verbalizations were categorized into "statements" and "interchanges." Each of these had several subcategories which classified the remark as "meaningful" or "drill," and rated its motivational quality. Whether the "Dynamic" scores would show any relationship to pupil achievement was a subsidiary research question, added to the original research design.

An observational schedule was planned in which each teacher was to be visited twice by each of four research assistants, making a total of eight 30-minute observations per teacher. Although there were many appointments that had to be rescheduled, nearly all of the planned observations were carried out.

Teacher reactions to these observations were quite interesting. The teachers in general welcomed class visits by the consultants and the project's assistant director, who followed up their observations by discussions in which they both commented freely about good features of what they had observed and offered constructive suggestions about specific areas of weakness. They reacted quite differently to the observations by the research assistants. They were bothered by the use of stopwatches, by the scribbling on a form they were not allowed to inspect, and most of all by the fact that they were never given any comments by the research assistants.

Provisions for Attrition of Pupils and Teachers

In schools like the twelve utilized in this study, a high rate of pupil transiency is characteristic. In an attempt to insure that a sufficiently large population would complete the experimental program, the number of pupils usually considered sufficient for reliable results was augmented by more than 50 per cent. The project began with over 350 pupils per teaching method.

Concern about possible teacher turnover caused us to request principals to give major attention to likelihood of staying for the full year, when enlisting teachers. Since only 2 of 48 teachers left the project before completion of final testing, this effort to minimize teacher turnover was highly successful.

Effect of Teacher Experience with Method

It was anticipated that there would be variations in the amount of familiarity teachers would have with the teaching method assigned to them, and that the teachers in the Language-Experience variables might take considerably longer to become competent in the specific method of teaching than the teachers in the Skills-Centered variables.

Accordingly, it was hoped from the start that an opportunity to replicate the first-grade study would be found. It seemed probable that the teachers, in teaching a second class of first-grade pupils, would more fairly show what the method can do when used by a teacher trained for it and experienced in it.

Effect of Delayed Outcomes

In the Skills-Centered variables a specific, restricted reading vocabulary is taught systematically and with considerable drill. In the Language-Experience variables major emphasis is placed on developing concepts and language facility, with a substantially smaller proportion of the total program spent on specific reading skills.

It seemed reasonable to assume that the long-term effects of these approaches might differ from the short-term effects. By the end of the second and third grades the delayed effects as well as the immediate effects should be apparent. Particularly with disadvantaged children, it seemed important to check on the delayed effects. Thus, before the results of the present study were available, a request to follow the children through two more years was made.

The CRAFT Project staff from the beginning believed that the first-grade results would be suggestive but not conclusive, and that both replication and follow-up studies would be necessary before final conclusions could be drawn.

The Teaching Methods

A brief description of the four teaching variables was given in Chapter I. It seems desirable to describe the teaching procedures in greater detail, and also to describe the program of training and supervision that was carried on in a determined effort to get classroom procedures to conform to the teaching methods as described. The training program and the four teaching methods are described in Chapter IV.

Chapter IV

THE TEACHING METHODS

The Teacher Training Program

Teacher training within the project was accomplished in several ways: (1) by an inservice training workshop; (2) by training within schools by consultants; (3) by training via the assistant director of CRAFT; and (4) by coordination through consultants and school administration.

Inservice Training Workshop

Sessions of the centralized inservice course started on June 18, 1964, when the teachers from all three boroughs convened for the first time at a central location in Manhattan. After meeting as a total group, the teachers met in four training groups, one for each teaching method. The workshop resumed in September. After September 10, 1964, when an all-day session was held, sessions were held on Mondays from 4-5:30 p.m. There were twelve city-wide sessions.

Starting in November, some of the training was shifted to district workshops which were led by the district reading consultants after centralized planning at CUNY. Time devoted to inservice training remained equal for all variables.

Training Within School by Consultants

Equalization of training time was not attempted within schools, however. Reading consultants, who visited the CRAFT teachers in classrooms in addition to meeting with them in groups, found that some teachers required more help than others in mastering the teaching method. In addition, the methods themselves were intrinsically unequal in newness to the teachers and in volume of techniques and technology to learn. The Audio-Visual variable, for example, required much instruction in the use of machines. In addition, audio-visual methodology related to reading was in a state of on-going development. The teachers in the A-V variable thus required the help of an additional consultant, who was provided by the Bureau of Audio-Visual Instruction and confined his attention to A-V classrooms only. The Phonovisual method, although new to all of its teachers, was highly structured and was found to be relatively easy to learn. The Language-Experience teachers, although not required to learn new technology, found the techniques of that method difficult to master, and supervising them required more time than supervising the teachers who followed the Basal Reader manuals.

Training Activities of the Assistant Director of CRAFT

Starting October 30, 1964, the CRAFT coordinator spent a day at each school in turn, making the complete round twice during the year. Arriving at the opening of the school day, she observed all four classes for one-half to three-quarters of an hour each. At a luncheon meeting with the four teachers (frequently with the principal or assistant principal and reading consultant also) she discussed frankly and openly the degree of adherence to variables, as well as teaching practices generally. In the afternoon, she either filled in additional observations or carried on discussion with individual teachers or supervisors. The teachers appeared eager to receive help, asked questions, and raised problems they had encountered.

Some of the problems which were taken up during these day-long training-observations are: (1) the tendency of some teachers to spend time disciplining, in the expectation that children must sit still in order for learning to proceed; (2) the inadequate size of some of the instructional material: pictures, flash cards, etc.; (3) the tendency to do whole-class teaching of a nature that requires much of the class to listen, without anything to do; (4) the tendency to use workbooks and other seatwork to keep children quiet rather than as meaningful reinforcement of learning; (5) the need for kinesthetic reinforcement of learning---the teachers required much discussion before allowing the children to write immediately; (6) the need for work in small groups; and (7) the need for individualizing approaches.

Problems raised by teachers at these sessions included the following:

1. Some objected to the "readiness" period. The 20-day delay in starting the teaching of reading had been responsible, they felt, for loss of the opportune moment for enthusiasm for reading, resulting in diminution of motivation to read.
2. Many teachers reached for precise instructions, wanted to be told exactly what to do. This dependence on supervision varied from teacher to teacher and tended to diminish as assurance in the variable developed.
3. The length and rigor of the pretesting program upset many of the teachers and caused some temporary alienation from the project.
4. In some of the schools, particularly those housed in new buildings, teachers complained of lacking necessities for language-experience materials, toys, primer typewriters, even general supplies. CRAFT provided sentence strips and experience-chart pads to supplement the school supply of these materials.
5. In some schools, a full supply of basal reader materials was not made available immediately; delays were experienced in obtaining workbooks and manuals.
6. Audio-visual teachers complained about delays in the receipt of equipment and in instruction in its use.

Coordination Through Consultants and School Administration

In order to administer the teacher training program successfully and with as little variation as possible, planning of the training techniques, philosophy and methodology had to be centralized. This coordination was accomplished by means of frequent meetings of the four reading consultants, the audio-visual consultant, the early childhood consultant, and the liaison elementary education consultant at the headquarters of The City University. All-day planning sessions were held weekly at first and later every other week.

After plans for teacher training were set down for all four variables by this group, the reading consultants assumed a dual role: (1) They maintained on-going help and supervision of the CRAFT teachers within their districts; and (2) Each one became an "expert" in one of the four variables, so that she could teach the other three consultants the intricate details of the method, prepare training materials, and lead the city-wide workshops for her particular method. The reading consultant who undertook to become expert in the A-V method met monthly with the CRAFT coordinator and representatives of the Bureau of Audio-Visual Instruction to explore improved ways of utilizing A-V technology to teach reading.

The cooperation of school principals and their assistants as well as of the superintendents of the districts in which CRAFT schools were located was actively solicited, since it was important to the success of the project. Periodic meetings of two kinds were held with this supervisory personnel: (1) Mrs. Helene Lloyd, the assistant superintendent in charge of Elementary Reading, convened city-wide meetings of all administrative participants in CRAFT; and (2) The CRAFT director and assistant director visited the district offices, where the superintendent and his CRAFT principals, and often assistant principals, would convene for discussion of CRAFT problems. The assistant director, when visiting schools, conferred with principals concerning the progress of CRAFT within each school. In addition, minutes of all consultants' meetings were distributed to principals, assistant superintendents, and actively participating Board of Education personnel.

The Basal Reader Variable

In planning the details of the Basal Reader variable, the intent was to help the teachers come as close as possible to the instructional practices intended by the authors and built into the reading materials and teachers' manuals.

Materials

A typical basal reader series provides the following materials for the first grade:

one or more readiness books (not used in CRAFT)
three preprimers (thin, soft-covered books)
a primer (first hard-cover book)

a first reader (second hard-cover book)
workbooks to accompany the preprimers, the primer, and the first reader
a teacher's manual for each book in the series
a set of cards or cardboard strips, each with a word, phrase, or phonic element printed on it

There may be additional materials, such as a review preprimer, a supplementary primer, supplementary story booklets, correlated filmstrips, etc. For the CRAFT Project "complete materials" was defined as including the preprimers, primer, first reader, workbooks, card set, and manuals.

Most first-grade basal series center their stories around a single family, who live in a comfortable, middle-class suburban environment. The CRAFT intention to use multi-ethnic, urban-centered basic readers was defeated by the unavailability, in September, 1964, of a complete first-grade multi-ethnic series. Three series (Scott, Foresman Basic Readers in six schools; Harper and Row "Alice and Jerry" in four schools; Ginn Basic Readers in two schools) already available in the schools were utilized. In the opinion of CRAFT research staff and reading consultants, these were sufficiently alike in content and methodology that they could be considered to constitute a single teaching variable.

Teaching Plan

A typical basal reader teaching plan contains the following steps:

A. Preparing for the story
   1. Motivation and arousal of interest
   2. Introduction and explanation of new concepts, ideas, and meanings
   3. Oral and visual presentation and preteaching of new words

B. Guided reading and rereading
   1. Supplying a motivating question for reading ahead

      2. Silent reading to find the answer
      3. Discussion of the answer
      4. Oral rereading, to satisfy a variety of purposes
   C. Developing specific reading skills
      1. Word recognition drill
      2. Training in auditory and visual perception
      3. Phonics and other word identification skills; part of this is teacher-led from specific plans in the manual; part depends on use of the workbook
      4. Exercises to develop specific comprehension skills
   D. Enrichment
      1. Dramatization or art work based on the story
      2. Story-telling or story-reading by the teacher
      3. Related musical selections
      4. Picture and story books related to the theme of the story for independent use by pupils
      5. Poetry, jingles, and rhymes

Preliminary discussion with the BR teachers disclosed that none of them had previously followed closely the lesson plans in the manuals. Most had used experience stories before starting the first preprimer. Some had never received copies of the manual and had devised their own teaching plans. Some had rarely gone beyond the oral rereading step, and had made little or no use of the manual suggestions for developing specific reading skills, and the suggestions for enrichment. Some had never taught in first grade previously.

In the workshop for BR teachers and in supervisory visits, emphasis was placed on using the BR material as intended by the authors. For all of the BR teachers, except those who had never before taught in first grade, this involved some departure from their previous teaching procedures.

The Phonovisual Variable

The Phonovisual Method is a step-by-step approach to phonics which can be used as a supplement to any method of teaching reading. The Washington, D. C. school district, which has been coping with the

problem of teaching large numbers of disadvantaged children, had reported considerable success with the Phonovisual Method used as an adjunct to the basal reader approach. In the CRAFT Project the Phonovisual Method was also used with basal readers, as the second of the Skills-Centered variables.

The Phonovisual teachers were instructed to use the basal readers for silent and oral reading. They were to follow the directions in the manuals for preparatory activities, for guided silent and oral reading, and for enrichment suggestions. The manual suggestions were to be utilized for introduction of new vocabulary and concepts and for the development of comprehension skills. However, the teachers were to omit those parts of the manual lesson plans that involved the teaching of phonic and structural analysis skills, and to use the Phonovisual method instead.

There are three main steps in the Phonovisual method. First, consonant sounds are taught in the initial position, with the rest of the word indicated by a line, e.g., b___. Each consonant is associated with a word, e.g., pig sound, wheel sound, fan sound. In the second stage, initial and final consonant sounds are both treated, with the line remaining to show the absence of the middle sound, e.g., b__t for beet. Third, vowel sounds are inserted into the middle position, starting with the long ee sound, e.g., beet. Short vowels are taught, returning to the remaining long vowels as the last step. In this third step, 29 consonant blends are taught by asking how many sounds before the vowel and how many sounds after the vowel. Finally, the children are taught to distinguish between "sound" words, which follow phonic rules, and "study" words, which do not conform to rules already learned.

The several workbooks provide variety and repetition to amplify teacher-led lessons. Writing is an integral part of the method. There is a good deal of writing of sounds from teacher dictation. For example, at an early stage the teacher says "Write the way pig begins, wheel begins, fan begins. The teacher dictates a number of words beginning with the p sound, wh sound and f sound, and asks the pupils to write the sound with which the word begins.

The materials supplied to the Phonovisual teachers included:

I. One copy per class
    A consonant wall chart
    A vowel wall chart

Consonant Flipstrips) illustrated letter charts for use
Vowel Flipstrips) as flash cards or on flannelboard
Phonovisual Gamebooks for teacher use
Phonovisual Method Book (Schoolfield and Timberlake, 1963), a teacher's manual

II. Material for each pupil:
  Phonovisual Readiness Book
  Phonovisual Transition Book
  Phonovisual Skill Builders (a set of the 26 letters of alphabet)
  Phonovisual Consonant Workbook
  Phonovisual Vowel Workbook
  Small reproductions of the consonant and vowel charts.

One of the CRAFT reading consultants spent five days in Washington in July, 1964, attending a workshop on this method. When she returned, she taught the other consultants, all of whom became proficient enough to supervise the Phonovisual teachers in their districts. However, the 12 centralized inservice training sessions were led by the consultant who had received the specialized training. A Phonovisual motion picture, showing the method in use in an experimental school, was utilized in these training procedures.

The Language-Experience Variable

Since the Language-Experience teachers had much to learn in connection with both the theory and the practice of this approach, there was a lapse of time before some of them became effective in this variable. The concept of oral communication leading to written composition which was to be used as basic reading material appeared to be difficult for them to put into practice. The idea of speech written down as the basis for reading had to be mastered by the teachers before they could use this approach in the classroom. After they had mastered this technique in connection with short captions for drawings, paintings, and other original class productions, they had to learn first to produce single experience stories and then to progress to a sequence of experience stories reproduced in book form for the children to read. The time it took to become an effective Language-Experience teacher varied greatly according to the flexibility of the teacher.

Teachers were encouraged to start with individual words, and to move to phrases, sentences, whole charts, and finally to complete consecutive stories. Some few teachers moved comfortably and flexibly within the size range of language units without this sequential approach.

The very idea of what constituted an experience presented a problem, since many teachers had the notion that experience charts stem only from trip experiences.

The following sources of children's oral production of language, to be written down and used as a basis for reading, were stressed as experiences:

1. Individual verbal productions
    - (a) Telling about realia brought into classroom to share with classmates
    - (b) Relating of personal experiences which had occurred at home and on the street
    - (c) Talking of hopes, aspirations, problems, reactions
    - (d) Extemporaneous verbalization among children while by themselves
    - (e) Words elicited as important to the child, words "I'd like to read and write."
    - (f) Telling the teachers about art production: painting, drawing, clay work, etc.; intensely personal "free" art expressions, or group production about a "core" subject
2. Group verbal productions
    - (a) Planning for class experiences
    - (b) Recalling and evaluating class experiences, from visits within the school building to long trips
    - (c) Discussing books, science experiments, social studies learning
    - (d) Discussing intra-group, inter-personal problems, arguments, ways of behaving, etc.

(e) Discussing stories read to the pupils, heard on records or tape, or seen on filmstrips
(f) Discussing holidays and seasons of the year
(g) Discussing class pets and class plants, their care and characteristics
(h) Planning classroom routines and assignments
(i) Birthday parties
(j) Planning walks in the immediate neighborhood, discussing the differences in what one sees during the four seasons on the same block

After the Language-Experience teachers had mastered the idea of how to translate experiences into language and then into reading materials, observing the world around them so that they could teach the children to verbalize about their total environment, methods of teaching reading from these experiences had to be taught in detail. Teachers requested specific suggestions for ways of developing sight vocabulary and word analysis skills, both phonic and structural. They needed help particularly in providing for repetition and reinforcement of learning, since they had heretofore depended heavily on the repetition provided in the basal readers to which they were accustomed. Many devices were created, such as class and individual hand-made tachistoscopes, word trees and a variety of games; repetition of basic vocabulary was also built into the experience stories.

The L-E teachers' need for structure in phonic teaching was so great that a workbook was selected, Basic Goals in Spelling, Book 1 (Webster Division, McGraw-Hill Book Co., 1964), for use in the L-E classes. The teachers were instructed not to use this workbook sequentially, but to use it for word recognition skills when the need and opportune moment for learning each skill arose. For example, when enough words such as blooms, buds, blossoms, and bushes, had been perceived auditorily, the visual modality would be introduced, and then the pages in the workbook that provide practice on that consonant would be used for reinforcement.

How to prepare experience charts was a study in itself. To assist in mastering the technique of constructing charts, the L-E teachers were given copies of Using Language Experience Charts with Children, (Columbus: Charles E. Merrill Books, Inc., 1964).

For aid in planning experiences within the classroom, copies of Listening Aid Through the Grades and Reading Aids Through the Grades, both by David Russell (New York: Teachers College Bureau of Publications), were provided.

Experience charts were thus composed on the basis of a series of experiences, around which concepts were first formulated orally by the children, then written down in their own words, and used as reading material. Many of the charts concerned direct life experiences, such as stories about the progress of a turtle or a plant; some charts dealt with vicarious experiences, such as discussions of books read to the class. Some of the booklets represented dramatizations emerging from puppet play. Some were individual productions, bound together as a class book, consisting of a drawing or a painting done by each child, with his caption or story printed below the illustration. Some dealt with water, electricity, or changes of season, and some with the classroom, school, or neighborhood. Some class charts evolved from reactions to emotional or sensory experiences, such as listening to music, talking about zoo sounds, or tasting foods cooked in the classroom. A good brunch was a favorite activity, involving shopping in the neighborhood stores, cooking, setting tables, eating, and cleaning up. All of this early verbalization and written production was accomplished by group oral dictation to the teacher. Reproduction of the charts into book form was done on a primer typewriter or by teacher manuscript printing, each copy illustrated by the individual child.

Much thought and discussion went into the handling of the oral language of the children. Since dialect usage and unstandardized grammar represent the usual mode of speech of these children and their families, it was decided that complete acceptance of their verbal production would be the first step; correction of poor usage and grammatical form would come later. This decision resulted in a procedure which was dubbed "parallel charts." The first chart reflected the exact words of the child and might read: "The turtle gone into his shell. We seen him move in the water." The parallel chart would emphasize "school language" (standard usage), and read "The turtle went into his shell. We saw him move in the water." Thus, phonic principles were not violated by writing "went" when the child said "gone," or "saw" when he said "seen." This system had a further advantage of acceptance rather than rejection of the communication style of the child at the outset.

After the children had become accustomed to charts written by the teacher, the next step was copying the chart by the children, an important transition stage, in which many classrooms remained for a considerable part of the year.

The third step, the leap into creative (or at least independent) writing, was accomplished more easily by some teachers than by others. When children returned from a trip to the park, or a walk around the block, class discussion would be shaped so that each child could write about the experience independently at his seat, while some few wrote at the board. Flat pictures, one for each child in the class, were also used as stimuli for independent writing, done in small groups under the guidance of the teacher. Booklets of creative writing by each child were shared with others and provided material for the transition into reading of trade books.

Although not a necessary outcome of the method, individualized reading did appear to the research staff and the reading consultants as a logical step in the progression. The transition was facilitated by the purchase of five to ten copies of co-basal literature books, and primary level newspapers, as well as several copies of individual titles, preferably (for economy reasons), on paper-back editions. As a small group of children became competent enough to read these stories, a short period of working together in the group was followed by branching out into individual reading of books self-selected from a large group of trade books provided for the classrooms by CRAFT. Class libraries were built up further with the cooperation of school librarians. Use of neighborhood and school libraries for individual borrowing was encouraged.

The Language-Experience, Audio-Visual Variable

On May 8, 1964, a meeting of members of The City University research staff and of the Bureau of Audio-Visual Instruction (BAVI) was held, at which plans were made for the A-V variable. It was agreed that most of the A-V equipment should be in the A-V classrooms by the end of November. This was to include for each A-V class: a phonograph, film-strip projector, a wall screen, a tape recorder, an overhead projector, earphones, a connecting box, and sharing the use of a motion-picture projector, a Polaroid camera, and a Kodak camera. There would, in addition, be access to a Thermofax copier for reproducing materials. Materials in each room would include film-strips, tapes, transparencies, and photographic film. CRAFT classes would also have priority in leasing 16 mm films from the classified lists. An annotated list of Approved Audio-Visual Resources Applicable to CRAFT A-V Classrooms in the Language Experience Variable was later distributed to A-V teachers.

It was agreed that the reading specialists would view all audio-visual materials before they were ordered for the schools, and that there would be a team approach to the project so that viewpoints and insights might be shared. Caution would be exercised against such massive concentration of audio-visual materials that general applicability of CRAFT project procedures would be vitiated because they would not be practicable in public school situations in New York City.

In planning for the preparation of special audio-visual materials for each A-V classroom, it was agreed that such local material would be coordinated with the language-experience approach of the project and would have relevance to the experiential base of the children and to the accepted rationale for concept development in each L.E. experience classroom.

If the physical aspects of the room permitted, every classroom was to have a viewing corner and a listening corner. The equipment in the viewing corner would be a film-strip projector, wall screen, the overhead projector, and the motion picture projector. The equipment in the hearing corner would be the phonograph, the tape recorder, the earphones and the connecting box.

BAVI's contribution toward the development of local subject matter material would depend on the interest, the social background, and the language of the children, and would be used to bridge the gap between the level of their language and book materials. Constructing new materials based on the culture and language of the children would be useful in their transition to standard English. The children's own writing and art would be used as much as possible in producing audio-visual materials to elicit verbalization which would be used in the first steps of reading.

The role of the A-V consultant was planned to include the following functions: (1) to help the project teachers and reading consultants learn the capabilities of the machines and to train them in their utilization; (2) to provide consultative and advisory service; (3) to coordinate "back-up" services, for example, priority in the leasing of 16 mm films, tape duplication, special graphic effects, and maintenance and repair of machinery; (4) to promote confidence and skill in the operation and use of the A-V materials and equipment; (5) to assist in the production of local materials as well as in their development and display; (6) to participate in selecting, ordering and requisitioning of A-V materials, supplies and equipment; (7) to engage in on-going evaluative procedures; and (8) to participate in cooperative planning.

Special meetings were held monthly, attended by the director and assistant director of BAVI, the A-V consultant for CRAFT, the CRAFT assistant director, and the reading consultant who had been designated as the instructor for the A-V workshop.

Since the A-V variable was new and opened up some interesting possibilities, this report will describe some of the innovations.

The Overhead Projector proved to be a flexible and useful instrument. Permanent transparencies were made, based on the basic vocabulary of each class as evolved from the speech of the children. Sources of this vocabulary were: (a) individual dictation about drawings or painting; (b) spontaneous verbalization as they narrated incidents in their lives; (c) class compositions about their experiences; (d) "organic" words, which the teacher elicited from the children as having special meaning for them--often emotionally toned words, which they wished to learn; (e) stories read or told by the teacher; (f) discussion of current events (space travel, for example); and (g) discussion of TV programs.

The children were able to view this "treasury of words" again and again on the overhead projector. The teachers either made their own simple transparencies or were encouraged to send their words weekly, printed on drawing paper 8-1/2 x 11", preferably with attractive children's drawings for permanent, more finished transparencies to be made by BAVI. Some of the words were learned by the whole class and some were for particular children, as individual development was encouraged. Transparencies were also made with phrases and sentences. Experience stories that had been printed on charts were later put on transparencies and used for group reading. The same stories were also assembled in small booklets.

Phonic and structural parts of words were printed on transparencies as children watched. Exercises designed to drill sounds of individual letters were done at seats and reinforced by work on the screen.

In essence, transparencies were used for instruction in place of the chalkboard, to capture and hold the children's attention and to vitalize learning. A child would work with the teacher at the overhead projector; mistakes were corrected, and the correction was visualized on the screen as the rest of the class watched. Words flashed on the overhead projector were studied by the children to note the likenesses and differences, initial and medial sounds, etc.

Children's pictures, transferred to transparencies, were the basis of discussion of lessons in noting details, predicting outcomes, seeing cause and effect, sequence of ideas, etc.

Tape Recorder.

The use of the tape recorder was developed in numerous ways. The children were encouraged to talk into the microphone, to record their own voices in discussing a story just heard, a picture, a filmstrip, a movie, or an incident in their lives. They participated in language activities, telling how snow felt and looked, how rain made rivers in the cracks of the school yards, how autumn leaves crunched underfoot and blazed in the trees. They discussed their ambitions. They talked of a story hour at a local library. They described street sounds, horns, the screeching of brakes, sirens, motor noises, school sounds, sounds heard during a visit to the zoo, sounds of animals, machines, etc.

Also recorded on tape were original stories and rhymes by the children, and talks by community helpers, the fireman, the doctor, the letter carrier, etc. These verbal formulations were written down and used in reading charts from which oft-repeated words were selected for reinforcement as "sight words."

Listening to their own tapes often elicited from the children shocked reactions to their own speech, as well as spontaneous correction. Thus the tape recorder provided motivation for clear speech and an instrument for improvement of oral production, as well as a medium for the production of reading material in the idiom, rhythm, and specific speech pattern of the child.

Earphones

Earphones were used for individual or small group listening experiences. On the theory that slum children are conditioned to block out noise and conversation, CRAFT incorporated into the A-V variable a strong emphasis on listening. A maximum of six children could use the earphones at one time.

Importance of Speech Patterns and Dialects

Since the A-V variable included use of a tape recorder for recording the speech of the children, what to do about idiomatic language and dialect speech became an important consideration. The use of audio-visual devices was intended first to produce participation and communication in the form of verbalization, without attention to deviant speech patterns.

It was decided to make correction of poor speech patterns and dialect language a second step, since in the earlier stages, such correction might be interpreted by the children as rejection. Ego development was considered an important goal, in addition to language development.

Thus their own available tape recordings as well as popular children's stories on phonograph records, made to accompany film-strips held their interest for relatively long periods. They used the earphones, too, to follow stories in books, using a marker and following the words on the printed page as they were spoken through the phones.

Cameras

A Polaroid camera and a small Kodak were available to each pair of A-V classrooms. These were used to illustrate experiences such as playground activity, walks in the neighborhood, visits within the school. They were also used to record what was seen on trips, and were instrumental in the stimulation of oral language and in expanding conceptualization.

It was planned, as part of the A-V variable, to photograph such items as houses of different kinds, fruits, vegetables, animals, stories, clothes, and a variety of signals (for example, "danger," "thin ice," "fire," "stop," "green," "yellow," "red"). An effort was made to go to first level of abstraction by massing individual items into a group or classification; for example, orange, apple, and avocado are all fruits; chair table, desk, cabinet, all furniture; etc.

Phonograph Records

In addition to the simple use of records in the development of listening skills, records were also used in several milti-media approaches. Recordings of stories accompanied both commercially-made film-strips and class-produced transparencies and experience booklets. Musical records such as Tubby the Tuba and Peter and the Wolf were made available as well. These were illustrated by drawings of the musical instruments put on transparencies and projected by the overhead projector, in an effort at concept and vocabulary development.

Delay in Implementation

Although it had been intended to have classroom A-V equipment substantially complete before December, delays in the filling of orders prevented this time schedule from being carried out, and most of the A-V classrooms had gaps in their allotment until well into January. As the different kinds of equipment arrived, the teachers needed training in how to use it for the benefit of reading instruction. It was not until February, therefore, that the A-V variable began to function as planned. Until that time, the A-V classes functioned very much like the other L-E classes.

A-V Newsletter

A mimeographed A-V Newsletter, prepared by the audio-visual consultant, was used for the exchange of successful A-V practices used by each teacher in the audio-visual variable. Since each teacher was encouraged to originate as many variations of methodology as possible in connection with each piece of equipment, this exchange of ideas was an effective way of disseminating a great variety of practices and of motivating creative thinking in this area.

For the first three months of the instructional period the A-V classes differed very little from the other L-E classes. As the A-V equipment arrived and began to be used, the essential nature of the L-E approach remained, but the A-V procedures gradually were used more and more for the presentation of both visual and auditory experiences.

CHAPTER V

RESULTS

The Pretest Results

The Total CRAFT Population

The fact that the CRAFT children tended to score low on the national norms for the pretests given in October was discussed in Chapter III. This was shown in Table 5, which was based on all the children who completed the pretests. Subsequently about 17 per cent of the children transferred out of the schools in the project. The pretest scores of those who remained through the experimental teaching period of 140 days and took all or most of the final tests are summarized in Table 14.

Table 14

PRETEST RESULTS FOR TOTAL FINAL POPULATION

PRETEST	N	No. of Classes	Mean Raw Score	S.D.	Range of Class Means	Percentile Rank of Mean Raw Score
Murphy-Durrell						
Phonemes	993	44	9.90	8.56	4.7 - 19.0	1
Capital Letters	1007	44	11.17	8.83	5.0 - 17.8	23
Lower Case Letters	793	35	8.89	7.21	1.9 - 14.6	26
Total Letters	793	35	20.31	15.41	6.9 - 33.0	24
Learning Rate	1064	48	8.17	4.03	5.2 - 15.1	44
Metropolitan						
Word Meaning	1124	48	5.25	2.28	2.3 - 7.8	14*
Listening	1125	48	6.79	2.58	3.6 - 8.1	23*
Thurstone						
Pattern Copying	1062	48	2.69	3.84	0.5 - 5.7	
Identical Forms	1102	46	5.36	6.16	0.8 - 13.4	

* Percentile ranks estimated from the means and S.D.'s given in the Manual.

It may be noted that the number of children on whom mean scores are based ranges from 793 to 1125, and the number of classes represented ranges from 35 to 48. This variation is due to the fact that the Murphy-Durrell Phonemes test was improperly administered in four classes; the test of Lower Case Letters was either overlooked by the examiner or improperly administered in 13 classes; and the Thurstone Identical Forms test was not productive of usable data in two classes. Both reports from proctors and the internal evidence of the record blanks were considered in deciding not to record certain class sets of scores because of deviant administration.

The pretest means of the final population are all slightly higher than those of the total pretest population, indicating that the children who left during the instructional period tended to come from the lower half of the distributions. This tendency is consistent for all nine of the pretests used.

The danger of considering disadvantaged children to be homogeneous in their abilities is clearly shown by the standard deviations and ranges of class means. Of the nine S.D.'s, two are actually larger than the means (on the two Thurstone tests), while four more (Murphy-Durrell) are almost as large as their means. The variability among individual pupils was very great on those six pretests. The variations among class means were even more startling, as shown by the ranges. On the test with the smallest range (Listening) the highest mean was more than twice the lowest mean; on the test with proportionately the greatest range (Identical Forms) the highest mean was approximately fifteen times the lowest mean.

The differences among class means become more understandable when it is recalled that in the majority of schools, two of the experimental classes contained random samples of the children with kindergarten experience, while the other two classes were chosen at random from among the children without kindergarten experience. In some of the classes (particularly in non-kindergarten classes) the examiners and proctors reported that many of the children did not seem to understand the standardized directions, even after the demonstration items had been completed. When a whole class is tested according to the standardized directions and achieves a mean score of less than one point, as happened on both Thurstone tests, the fact that the test was unsuitable for that class is clearly demonstrated. The two Thurstone tests and the Phonemes test were generally reported to be frustratingly difficult for large segments of this population.

Current norms based on the population of the 27 projects sponsored by the U.S.O.E. Cooperative Research Program are given in the 1965 Manuals of the Murphy-Durrell Reading Readiness Analysis and the Metropolitan Readiness Tests; the data given in the two manuals indicate that the norms of the two tests were based on the same population (a total of 12,231 children each) and thus are directly comparable. The CRAFT children seem to have comprised approximately one-tenth of this total normative population.*

On the five Murphy-Durrell subtests and the two Metropolitan subtests that were used, the CRAFT children showed a very uneven pattern. They showed up most poorly on the Phonemes subtest, which is intended to measure ability to hear and distinguish consonant sounds within spoken words. The mean CRAFT score was 9.90, ranking within the bottom one per cent of the normative group. The highest CRAFT class on this test had a mean of 19.0, ranking at only the 8th percentile of the normative population. Practically no CRAFT children scored above the normative 50th percentile; the corresponding raw score of 37 is approximately three S.D.'s above the CRAFT mean of 9.90. Three possible explanations of this extremely low showing are: (1) inability to understand the language of the instructions; (2) marked differences between the pronunciation of test words by the examiners and the speech patterns to which the children were accustomed; and (3) lack of experiences that would provide preparatory training in auditory perception skills.

The CRAFT children's second lowest showing was on the Word Meaning subtest. The CRAFT mean rated only at the 14th percentile of the normative population. Not one of the 48 CRAFT classes had a mean as high as the mean of the normative population. These findings confirm previous reports that disadvantaged Negro children are already quite retarded in vocabulary development when they enter the first grade.

On four subtests--Capital Letter Names, Lower Case Letter Names, Total Letter Names, and Listening--the CRAFT means fell at the 23rd to 26th percentiles of the normative group. The median percentile for the seven subtests was 23.5.

---

* At the time this report is being written, similar norms have not been made available on the two Thurstone tests.

On one subtest, however, the CRAFT children did comparatively well. This is the Murphy-Durrell Learning Rate test, on which the CRAFT mean stood at the 44th percentile of the normative population. This test is essentially a standardized lesson in which nine words are taught by a "look and say" technique. After an interval of an hour, a 27-item recognition test is given. The CRAFT mean of 8.17 was not much below the normative 50th percentile (raw score of 8.8). One CRAFT class had a mean of 15.1, ranking at the 88th percentile of the normative population.

If it can be assumed that the Learning Rate Test is a measure of aptitude for learning to recognize words by a sight or "look and say" method, the CRAFT population seems to be almost up to the national norm in this aptitude. This is in sharp contrast to their extremely low performance on the Phonemes test, a fact which should have some relevance to readiness for phonic instruction.

Pretest Results for the Four Teaching Methods

Since it had been known in advance that there were substantial differences among the twelve schools in such relevant data as neighborhood income, neighborhood educational level, and standing on recent citywide reading tests, great care had been taken to work out a pattern for assignment of teaching methods to schools and classes that would not be biased for or against any of the teaching methods. Each of the twelve schools had two skills-centered classes and two Language-Experience classes. The four possible pairs of teaching methods (B.R. vs. L.E.; B.R. vs. L.E.-A.V.; Ph. vs. L.E.; Ph. vs. L.E.-A.V.) had been assigned to three schools each by a randomized method. Within each school, the classes were assigned to the two teaching methods in a way that balanced kindergarten-experienced classes and non-kindergarten-classes, but left to chance which class in a pair would be assigned to each method.

With twelve classes for each teaching method, and precautions against bias as listed above, it was hoped that the pretest results for the four methods would be fairly evenly balanced. The means and S.D.'s of the nine pretests are shown in Table 15 for the four teaching methods. While the differences were not tremendous, the methods were not evenly balanced. The B.R. group had the highest mean on five of the tests; the L.E. group had

ADDENDUM

The Detroit Word Recognition Test was given in October, 1964, to the 48 pupils whose teachers thought they had shown signs of some ability to read words. Of the 48, just half (24 children) made scores of 0, 1, or 2, which were considered to fall within the range of chance success. The other 24 pupils were evenly divided, 12 in Skills-Centered classes and 12 in Language-Experience classes. In addition, their mean scores on the four pretests used in the covariance adjustments were substantially higher than the means for the total population. Their outcome measures were also substantially higher than those of the total population. Because of the small number of early readers,the even numerical division between the two major approaches, and the covariance adjustments, it seems safe to conclude that ability to read at the beginning of the first grade did not differentially affect the outcomes of the teaching methods and approaches.

Table 15

PRETEST RESULTS FOR THE FOUR TEACHING METHODS

PRETEST	TEACHING METHOD							
	I B.R.		II PH.		III L.E.		IV L.E.-A.V.	
	M	S.D.	M	S.D.	M	S.D.	M	S.D.
Murphy-Durrell								
Phonemes	11.05	9.31	9.06*	8.07	8.50	7.33	10.88*	9.06
Cap. Ltr. Names	11.29	8.67	11.57*	9.21	10.28	8.52	11.72*	8.95
Lower Case Ltr. Names	8.98*	6.80	8.93*	7.18	8.58*	7.25	9.13*	7.59
Total Ltr. Names	21.43*	14.92	19.90*	15.65	19.03*	15.00	21.01*	16.06
Learning Rate	9.01	4.27	7.76	3.67	7.15	3.72	8.75	4.12
Metropolitan								
Word Meaning	5.18	2.21	5.12	2.25	5.47	2.21	5.23	2.42
Listening	6.95	2.35	6.79	2.64	6.68	2.60	6.75	2.71
Thurstone								
Pattern Copying	2.29	3.37	2.76	3.69	2.90	4.02	2.81	4.24
Identical Forms	4.64	5.48	5.52	6.52	5.72*	6.40	5.60	6.18
N (Final Populations)	291		283		289		278	

* Based on fewer than 12 classes.

the lowest mean on six of the tests.

These results, together with the large differences in means of individual classes, indicated that it would be necessary to correct the outcome measures for initial differences in aptitude. The method chosen was analysis of covariance.

Intercorrelations among Pretests

One of the requirements for correcting a set of class means by analysis of covariance is that there must be a set of scores for every class on each pretest measure to be used. This eliminated all of the pretests for which data were missing on one or more classes: four of the five Murphy-Durrell scores, and the Thurstone Identical Forms. Four pretests had usable sets of scores for all 48 classes. These were the Murphy-Durrell

Learning Rate, Metropolitan Word Meaning and Listening, and Thurstone Pattern Copying.

Table 16

INTERCORRELATIONS AMONG FOUR PRETESTS*

TEST	TEST			
	1	2	3	4
1. Murphy-Durrell Learning Rate		.12	.21	.22
2. Metropolitan Word Meaning			.34	.25
3. Metropolitan Listening				.22
4. Thurstone Pattern Copying				

* Minimum N is 1062

The intercorrelations among these four tests are shown in Table 16. They are consistently low, ranging from .12 to .34. This indicates that a combination of the pretests is likely to produce better correlations with outcome measures than any one pretest.

Correlations between Pretests and Posttests

The correlations between the four pretest measures and the tests used as outcome measures are shown in Table 17. Since eliminating all children for whom any score was missing would have resulted in a loss of several hundred cases, each correlation was computed using every child for whom both scores were available. Thus the number of cases varies. The correlations with subtests of the Stanford are based on N's between 1062 and 1127. The individual tests had been administered to four children chosen at random from each class, giving 48 cases for each teaching method, 96 cases for each approach, and a total of 192 cases.

An inspection of Table 17 shows that nearly all of the r's are low or very low. Only three of the 40 r's are above .40. None of the four pretests had much higher correlations than the other three. However, even low correlations like these are usable in combination when the correlations among the pretests are low. One multiple correlation was computed to check

Table 17

INTERCORRELATIONS BETWEEN PRETESTS AND POSTTESTS

	PRETESTS			
	M-D Learning Rate	Metropolitan Wd. Mng.	Metropolitan Lstng.	Thurstone Pattern Cop.
Stanford Achievement[1]				
Word Reading	.42	.32	.32	.37
Paragraph Meaning	.36	.27	.32	.35
Vocabulary (oral)	.25	.36	.32	.29
Spelling	.30	.25	.27	.32
Word Study	.29	.33	.36	.35
Gilmore Oral Reading[2]				
Accuracy	.37	.32	.36	.29
Rate	.20	.08	.06	.26
Fry Phonetic Word[2]	.53	.17	.15	.09
Gates Word Pronunciation[2]	.38	.24	.32	.25
Karlsen Phonemic Word	.41	.29	.26	.21

[1] N = 1062 to 1127

[2] N = 192

the desirability of using all four pretests, and came out with an R above .50. It was decided, therefore, to utilize all four of the available pretests in the covariance analysis. The correlations in Table 17 are based on individual pupil scores and are not corrected for covariance. They do not include the five pretests for which data were missing for one or more entire classes. For those five tests, correlations with outcome measures can be found in Table 46. However, Table 46 is based on class means corrected for covariance on the posttests, and is not directly comparable with Table 17.

Results of the Outcome Measures

In order to adjust the outcome measures for initial differences in pretest performance, a special computer program was developed for this project that does an analysis of covariance with multiple covariates and with unequal numbers of cases. The provision for unequal numbers made it possible to avoid eliminating hundreds of children who had taken most of the pretests and posttests but had one or more missing scores.

A separate covariance analysis was done for each of the five Stanford subtests, for the Gilmore Accuracy score, and for the Gates Word List. The Gilmore Rate score and the Fry and Karlsen Word Lists were tried, but for technical reasons the covariance program could not be made to work for the results of those posttests. Covariance analyses were also carried out for the writing samples, which will be discussed separately.

Table 18

ANALYSIS OF COVARIANCE, STANFORD WORD READING

SOURCE	SS	df	MS	F
TOTAL	33734.130	1000		
ERROR	26707.032	953	28.024	
CLASSES	7027.098	47	149.513	5.335

P < .01

Table 19

ANALYSIS OF COVARIANCE, STANFORD PARAGRAPH MEANING

SOURCE	SS	df	MS	F
TOTAL	41513.250	1000		
ERROR	31208.527	953	32.748	
CLASSES	10304.723	47	219.249	6.695

P < .01

The analysis of covariance table for the five Stanford subtests are shown in Tables 18-22.*

---

* The original computer runs for this and the other statistical data of CRAFT are on file in the Office of Research and Evaluation, and are available for inspection.

Table 20

ANALYSIS OF COVARIANCE, STANFORD VOCABULARY

SOURCE	SS	df	MS	F
TOTAL	25092.861	1000		
ERROR	19747.257	953	20.721	
CLASSES	5345.604	47	113.736	5.489

P < .01

Table 21

ANALYSIS OF COVARIANCE, STANFORD SPELLING

SOURCE	SS	df	MS	F
TOTAL	25353.269	1000		
ERROR	17885.922	953	18.768	
CLASSES	7467.347	47	158.880	8.465

P < .01

Table 22

ANALYSIS OF COVARIANCE, STANFORD WORD STUDY SKILLS

SOURCE	SS	df	MS	F
TOTAL	71279.371	1000		
ERROR	55755.099	953	58.505	
CLASSES	15524.273	47	330.304	5.646

P < .01

The F values for these analyses are all significant at the .01 level, indicating that after adjusting the means of the 48 classes, significant differences remain. What these differences may be attributed to will be considered below.

Insofar as background factors such as low family income, low parent education, and similar socio-economic conditions handicap a child in the development of the abilities needed for successful learning in school, they should affect the child's performance on reading readiness measures as well as in classroom learning. The data on pretests given above show quite severely low scores on most of the pretests for the CRAFT population as a whole. It seems reasonable to assume that when the posttest scores were adjusted for differences in pretest performance, adjustment was being made not only for the specific abilities tapped by the tests, but also for the background factors which were somewhat variable from school to school, and from child to child.

It has been assumed, therefore, that in adjusting the posttest scores for differences in pretest scores, such background factors as parental income and education, and neighborhood conditions have also been adjusted.

Stanford Primary

The Stanford Primary 1 Battery, Form X, was published in 1964. It contains six tests, one of which (Arithmetic) was not given. The other five subtests were given to all the children in CRAFT classes.

At this point, it seems desirable to describe these tests. The first is Word Reading. Each item consists of a picture and four words, one of which is illustrated by the picture and is to be marked. The task involves correct picture identification and the recognition of the pictured word without the aid of context. There are 35 items arranged in order of increasing difficulty.

The Paragraph Meaning test consists of a series of paragraphs of increasing length and difficulty. In each paragraph one, two or three words are represented by dotted lines. For each dotted line, the child chooses the best fitting word of four choices offered. The manual states that the authors have attempted to emphasize "reading as reasoning."

The Vocabulary subtest is intended to measure knowledge of the meaning of words independent of reading skill. The examiner first reads the question, then reads the three choices to the children. The test is a measure of hearing vocabulary.

The Spelling subtest is a conventional dictation-type test. The examiner pronounces a word, reads a sentence containing the word, and repeats the word. The children then attempt to write the word.

The Word Study Skills subtest includes items intended to measure auditory perception of beginning sounds, ending sounds, phonics (recognition of spoken words), and rhyming words.

Of the five tests, then, the Word Reading, Paragraph Meaning, and Word Study Skills tests measure aspects of reading ability. The Vocabulary test requires no reading ability, and the Spelling test measure a related language art skill.

The adjusted mean raw scores for the twelve classes in the Basal Reader Method were combined to give a mean for the method. Similar means were computed for the other three methods. The two methods in each approach were then combined to give means for the two main approaches.

These means are shown in Table 23. On each of the five subtests the Skills-Centered mean was a little higher than the Language-Experience mean. Within the Skills-Centered Approach the Basal Reader Method had slightly higher means than the Phonovisual-Basal Reader Method on Paragraph Meaning, Vocabulary, and Spelling, while the Phonovisual Method was slightly higher on Word Reading and Word Study Skills. Within the Language-Experience Approach the means for the regular Language-Experience Method and the L.E. Audio-Visual Method are so similar as to be essentially equal on all five subtests.

Table 23

ADJUSTED STANFORD RAW SCORE MEANS FOR THE TWO APPROACHES
AND FOUR TEACHING METHODS

	Skills-Centered Approach			Language-Experience Approach		
	B.R.	Ph.	Total	L.E.	L.E.-A.V.	Total
Word Reading	14.76	15.46	15.11	12.93	13.00	12.96
Paragraph Meaning	13.31	11.42	12.40	10.43	9.90	9.99
Vocabulary	15.95	14.94	15.45	14.51	14.50	14.50
Spelling	8.38	8.20	8.30	7.27	7.32	7.30
Word Study Skills	25.04	28.30	26.64	25.38	25.66	25.52

The statistical significance of these findings, and the separation of Method effects from other factors, will be treated in the section on analysis of variance below.

A study of the tables of norms for the Stanford Primary I indicates that several adjacent raw scores frequently result in the identical grade score. On the Paragraph Meaning Test, for example, raw scores of 10, 11, and 12 all have a Grade Score of 1.5; 13, 14, 15 and 16 correct answers all become 1.6; 17, 18, 19 and 20 all correspond to 1.7. Thus a measurable difference in raw score means may disappear when translated into Grade Scores.

Table 24 shows the mean grade scores corresponding to the mean raw scores in Table 23. The total range of differences in the whole table is only two-tenths of a grade. In Vocabulary and Spelling the two approaches and four teaching methods are all equal. The Basal Reader method has a slight advantage (0.1 year) in Paragraph Meaning, the Phonovisual-Basal Reader method has a slight advantage (0.1 year) in Word Study Skills, and the two Skills-Centered methods have a slight advantage (0.1 year) over the two Language-Experience methods in Word Reading. According to the Stanford results, differences among the methods seem to be of little practical consequence, even when they are statistically significant.

Table 24

GRADE EQUIVALENTS OF ADJUSTED STANFORD MEANS FOR TWO APPROACHES AND FOUR TEACHING METHODS

	Skills-Centered Approach			Language-Experience Approach		
	B.R.	Ph.	Total	L.E.	L.E.-A.V.	Total
Word Reading	1.5	1.5	1.5	1.4	1.4	1.4
Paragraph Meaning	1.6	1.5	1.5	1.5	1.5	1.5
Vocabulary	1.5	1.5	1.5	1.5	1.5	1.5
Spelling	1.6	1.6	1.6	1.6	1.6	1.6
Word Study Skills	1.4	1.5	1.4	1.4	1.4	1.4

Analysis of Variance: Word Reading. The results for each of the Stanford subtests were subjected to an analysis of variance designed for this project by Donald M. Medley. This allowed each of the following factors to be tested for possible significance in the obtained differences: (1) differences among the schools; (2) the Skills-Centered Approach vs. the Language-

Experience Approach; (3) Language-Experience method vs. Audio-Visual Supplementation method; (4) Basal Reader method vs. Phonovisual-Basal Reader method; (5) the particular pairing of methods in the four possible patterns (B.R. vs. L.E.; B.R. vs. L.E.-A.V.; Ph. vs. L.E.-A.V.); (6) interaction of approaches, by schools; and (7) class differences within methods (the residual).

Table 25

ANALYSIS OF VARIANCE, STANFORD WORD READING

SOURCE	df	SS	MS	F	P
School Differences	11	95.941	8.722	2.166	
L.E. vs. Skills-Centered	1	59.318	59.318	14.728	.001
A.V. Enrichment (with L.E.)	1	8.330	8.330	2.068	
Ph. (with Skills-Centered)	1	8.554	8.554	2.124	
Treatment Interaction with schools	1	1.111	1.111	.276	
Interaction, approach by schools	8	31.125	3.891	.966	
Residual (class differences within methods)	24	96.662	4.028		
TOTAL	47	301.040			

The results of applying this analysis of variance to the corrected class means on the Word Reading subtest are shown in Table 25. The only statistically significant difference is that between the Skills-Centered Approach and the Language-Experience Approach, which has an F value of 14.73 and has only one chance in a thousand of being a chance result. This difference is already known to amount to only one-tenth of a year in grade score. None of the other possible interactions approaches significance. The residual attributable to class differences within methods is quite large.

Analysis of Variance: Paragraph Meaning. The results on the Paragraph Meaning subtests are shown in Table 26. The only interaction that reaches statistical significance is the slight edge of the Skills-Centered Approach over the Language-Experience Approach; the F value of 9.92 has a $P < .01$. None of the other interactions approaches significance. The class differences within methods are again very large.

Table 26

ANALYSIS OF VARIANCE, STANFORD PARAGRAPH MEANING

SOURCE	df	SS	MS	F	P
School Differences	11	117.980	10.726	1.322	
L.E. vs. Skills-Centered	1	80.477	80.477	9.922	.01
A.V. Enrichment (with L.E.)	1	.283	.283	.035	
Ph. (with Skills-Centered)	1	13.174	13.174	1.624	
Treatment Interaction with schools	1	7.073	7.073	.872	
Interaction, approach by schools	8	60.224	7.528	.928	
Residual (class differences within methods)	24	194.657	8.111		
TOTAL	47	473.869			

Analysis of Variance: Vocabulary. As was noted earlier, the Vocabulary subtest is not a measure of reading skill but rather a measure of listening vocabulary. On this test all of the four methods came out with the same mean grade score (see Table 24) and none of the possible interactions in Table 27 approaches significance. The class differences within methods are again quite large.

Table 27

ANALYSIS OF VARIANCE, STANFORD VOCABULARY

SOURCE	df	SS	MS	F	P
School Differences	11	21.297	1.936	.425	
L.E. vs. Skills-Centered	1	10.331	10.331	2.267	
A.V. Enrichment (with L.E.)	1	.968	.968	.212	
Ph. (with Skills-Centered)	1	2.450	2.450	.538	
Treatment Interaction with schools	1	1.652	1.652	.362	
Interaction, approach by schools	8	73.066	9.133	2.004	
Residual (class differences within methods)	24	109.392	4.558		
TOTAL	47	219.156			

Analysis of Variance: Spelling. Spelling is a related language-arts skill on which differences would not have been surprising. In terms of mean grade scores there were no differences between the two approaches or among the four methods. It is not surprising, therefore, that the only significant interaction is among schools, with an F of 3.51 and P = .01. A probably significant interaction between Audio-Visual and Language-Experience also shows up; with an F of 6.04 and P < .05, its significance is not certain. Class differences within methods are once again large.

Table 28

ANALYSIS OF VARIANCE, STANFORD SPELLING

SOURCE	df	SS	MS	F	P
School Differences	11	179.199	16.291	3.505	.01
L.E. vs. Skills-Centered	1	19.078	19.078	4.105	
A.V. Enrichment (with L.E.)	1	28.053	28.053	6.036	.05
Ph. (with Skills-Centered)	1	9.631	9.631	2.072	
Treatment Interaction with schools	1	.070	.070	.015	
Interaction, approach by schools	8	29.176	3.647	.785	
Residual (class differences within methods)	24	111.542	4.648		
TOTAL	47	376.750			

Analysis of Variance: Word Study Skills. Although the Phonovisual-Basal Reader method was slightly higher than the other three methods in Word Study Skills mean grade score, this does not show up distinctively in the analysis of variance (Table 29). For this subtest there is a significant school difference (F = 4.05, P < .01) and also a significant difference between Skills-Centered Approach and Language-Experience Approach. The difference between Basal Reader method and Phonovisual-Basal Reader method is non-significant. Class differences within methods are again outstanding.

Table 29

ANALYSIS OF VARIANCE, STANFORD WORD STUDY SKILLS

SOURCE	df	SS	MS	F	P
School Differences	11	342.870	31.170	4.047	.01
L.E. vs. Skills-Centered	1	96.284	96.284	12.502	.01
A.V. Enrichment (with L.E.)	1	19.481	19.481	2.530	
Ph. (with Skills-Centered)	1	5.604	5.604	.728	
Treatment Interaction with schools	1	.238	.238	.031	
Interaction, approach by schools	8	35.899	4.487	.583	
Residual (class differences within methods)	24	184.834	7.701		
TOTAL	47	685.210			

Results of Individual Posttests

In accord with the plans for the 27 coordinated studies of first-grade reading, individual reading tests were given to a sample of four children from each class, chosen at random. This provided 48 scores for each method and 96 scores for each approach, a total of 192 children given the individual tests.

It would have been simple to report means on this sample for the four methods and attempt to determine the significance of the differences. It seemed necessary, however, to correct the class means for covariance before using analysis of variance. Attempts to use the covariance program with these data ran into many frustrations, wasted much computer time, and held up the completion of the statistical analysis for a considerable period of time.

Successful covariance adjustments for two of the individual reading tests were finally achieved as shown in Tables 30 and 31. After adjusting the means, the remaining differences are probably significant for the Gilmore Accuracy score (P = .05), which is a measure of accuracy in the oral reading of connected material. The residual differences for the Gates Word List are not significant. The Gilmore Rate, Fry Word List, and Karlsen Word List scores thwarted our efforts to apply covariance corrections.

Table 30

ANALYSIS OF COVARIANCE, GILMORE ACCURACY

SOURCE	SS	df	MS	F
TOTAL	10658.597	140		
ERROR	5994.572	93	64.458	
CLASSES	4664.025	47	99.235	1.540

P = .05

Table 31

ANALYSIS OF COVARIANCE, GATES WORD PRONUNCIATION

SOURCE	SS	df	MS	F
TOTAL	4006.269	128		
ERROR	2172.862	81	26.826	
CLASSES	1833.408	47	39.009	1.454

N. S.

The uncorrected means and standard deviations of the individual reading tests are shown in Table 32. The means are consistently somewhat high-

Table 32

UNCORRECTED MEANS AND STANDARD DEVIATIONS FOR THE INDIVIDUAL READING TESTS, FOR FOUR TEACHING METHODS

TEST	METHOD							
	B.R.		PH.		L.E.		L.E.-A.V.	
	M.	S.D.	M.	S.D.	M.	S.D.	M.	S.D.
Gilmore Oral Reading								
Accuracy	1.83	1.06	1.82	.85	1.50	.60	1.54	.84
Rate	40.44	25.2	38.95	23.20	30.19	25.78	29.76	25.60
Fry Test of Phonetic Wds.	2.19	5.04	3.54	6.98	.74	1.72	1.92	4.20
Gates Word Pronunciation	7.94	5.94	8.48	6.19	5.81	4.76	5.69	4.91
Karlsen Phonemic Word	5.42	6.76	6.23	8.42	2.60	3.54	3.23	5.53
N	48		48		48		48	

er for the Skills-Centered methods (B.R. and Ph.) than for the Language-Experience methods. Critical ratios for differences among the uncorrected means are shown in Table 33. The differences between the two Skills-Centered methods (B.R. and Ph.) were consistently non-significant. Four of the five differences between the two Language-Experience methods are non-significant and the fifth is probable ($P < .05$) but not certain. Most of the differences between the two approaches have probabilities less than .05 or less than .01 of being chance results.

However, the means in Table 32 are not corrected for initial difference in pupil ability as shown on the pretests. As noted above, there was a probably significant residual difference on the Gilmore after adjustment by covariance. But on the Gates Word Pronunciation Test, differences which were significant at the .01 level before correction became non-significant after correction. If the covariance correction had been applied to the Fry and Karlsen scores, the results might have shown the same effect. It therefore cannot be certain that the significant differences in the means on the three word pronunciation tests are due to differences in teaching methods; they may very well be explained in terms of initial differences in ability which, although due to chance, nevertheless favored the Skills-Centered methods.

Analyses of variance, using the same computer program as for the Stanford scores, were run for scores obtained from the individually tested pupils. These included two measures adjusted for covariance (Gilmore Accuracy and Gates) and the measures that were not adjusted (Gilmore Rate, Fry, and Karlsen tests.)

Although there had been some apparently significant differences between the means of the two approaches, these disappeared in the analysis of variance. In the analysis of variance tables for the individual tests there is not one interaction between approaches or between methods that reaches statistical significance. It seems evident that the small but statistically significant differences noted above are not ascribable to differences between teaching approaches or methods. Neither are they ascribable to school differences or treatment interactions. It does not seem necessary to reproduce all of these analysis of variance tables; they are available for inspection should anyone be interested. These comparisons are based on samples of 48 pupils for each method. The results for those samples do not show

Table 33

CRITICAL RATIOS FOR DIFFERENCES AMONG METHODS ON INDIVIDUAL READING TESTS

TEST	COMPARISONS											
	L.E. vs A.V. C.R.	P	L.E. vs PH. C.R.	P	L.E. vs B.R. C.R.	P	A.V. vs PH. C.R.	P	A.V. vs B.R. C.R.	P	PH. vs B.R. C.R.	P
Gilmore												
Rate	< 1	N.S.	2.12	< .05	1.88	< .05	1.64	=.05	1.51	N.S.	< 1	N.S.
Accuracy	< 1	N.S.	1.74	< .05	1.94	< .05	1.84	< .05	2.04	< .05	< 1	N.S.
Fry Phonetic Words	1.81	< .05	2.69	< .01	1.15	N.S.	1.38	N.S.	< 1	N.S.	1.09	N.S.
Gates Word Pronc.	< 1	N.S.	2.36	=.01	1.87	< .05	2.45	< .01	2.02	< .05	< 1	N.S.
Karlsen Phonemic Words	< 1	N.S.	2.75	< .01	2.55	< .01	2.06	< .05	1.74	< .05	< 1	N.S.

significant relationships between teaching methods and individual test results, when all classes are included.

The Writing Samples

The children in all of the CRAFT classes had written two compositions, a "restricted stimulus" composition and a "unique stimulus" composition. The "restricted stimulus" was the same for all cooperating projects and consisted simply of asking the children to write their own stories. The other stimulus was "unique" for each one of the 27 projects. The CRAFT teachers were asked to show their classes three pictures, all illustrating summertime activities. Each teacher was to motivate her class in her customary fashion for creative writing. During the discussion, the idea of writing about summer fun was elicited.

The papers of the 192 children who were given the individual reading tests were scored. Because of pupil absence a few papers were missing, but the N's for all methods were above 40.

The three scoring procedures required of all cooperating projects included a measure of mechanics (punctuation, paragraphing, etc.), number of words spelled correctly, and total number of running words. According to these criteria, it was possible for a child who managed to write a long, unconnected series of correctly-spelled words to receive a higher score than a child who wrote coherently but with many misspellings and poor punctuation. The CRAFT research staff attempted to eliminate this source of error by constructing a three-point "lucidity" scale which measured the sense of coherence of both the "restricted" and the "unique" writing samples. Three independent scorers rated each of the 384 compositions for lucidity.

The means for the four teaching methods on the five Writing Sample scores are shown in Table 34. These are the unadjusted means. Of 30 comparisons, only one difference reached the .05 lead of significance. The differences among methods are small and lacking in significance because of large standard deviations and relatively small N's (41 to 44).

The two Lucidity scores were amenable to analyses of covariance, with results shown in Tables 35 and 36. In both tables the differences between methods remaining after the covariance adjustment of means are too

Table 34

UNCORRECTED MEANS FOR THE WRITING SAMPLE SCORES

MEASURE	Skills-Centered		Language-Experience	
	B.R.	PH.	L.E.	L.E.-A.V.
Mechanics	56.98	50.66	55.07	55.02
No. Words Spelled Correctly	15.73	14.10	14.86	15.09
No. of Running Words	19.39	17.84	17.77	18.89
Restricted: Lucidity	2.39	2.23	2.40	2.32
Unique: Lucidity	2.45	2.53	2.19	2.27

N's range from 41 to 44

Table 35

ANALYSIS OF COVARIANCE, RESTRICTED WRITING SAMPLE, LUCIDITY

SOURCE	SS	df	MS	F
TOTAL	89.7284	128		
ERROR	57.5183	81	0.7101	
CLASSES	32.2100	47	0.6853	0.965 N.S.

Table 36

ANALYSIS OF COVARIANCE, UNIQUE WRITING SAMPLE, LUCIDITY

SOURCE	SS	df	MS	F
TOTAL	88.7470	120		
ERROR	50.9149	73	0.6975	
CLASSES	37.8321	47	0.8049	1.154 N.S.

small to be significant. It seems safe to conclude that similar results would have been found for the other three Writing Sample scores, and that the Writing Samples failed to reveal significant differences.

Corrections for Differences in Length of School Day

In Chapter III the fact was mentioned that in three of the nine schools, the first grades had to be placed on split-session days of four hours because of overcrowding, while the other nine schools were on full-session five-hour days. Three of the four methods included some split-session classes; the fourth (L.E.) did not. The teachers on full-session were instructed to devote three hours a day to the Language Arts; the split-session teachers were instructed to spend two and a half hours on Language Arts.

Obviously the effect of this unintended difference in school day had to be investigated to see if it influenced achievement. Within the two main approaches separate means were computed for the full-session classes and the split-session classes. The results, given in Table 37, show quite clearly that the difference between full-day and split-session was important. The reduction in time in split-session classes seems to have had a more detrimental effect on the Audio-Visual classes than on the Skills-Centered classes.

It must be noted that the difference between split-session and full-session classes involved more than a difference of one hour per day in class time. The full-session classes had rooms to themselves, which the teachers could decorate as they pleased. They could leave items on a blackboard or bulletin board from one day to the next. After a three-hour morning there was an hour for lunch and a two-hour afternoon session. The split-session classes occupied their rooms from 8:00 A.M. till noon. Another class used the same room from noon till 4:00 P.M. The need to leave the room in shape for the next class may well have had significant influences on teachers' procedures. The four-hour period with only a short snack period seems long for little children. Thus the split-session classes were probably at a disadvantage in ways other than simply having less instructional time.

The posttest results were therefore recomputed, dropping out all split-session classes and using the adjusted means for the full-session classes. The results are shown in Tables 38, 39, and 40. The results for the two main approaches are shown in Table 38. There are consistent differences in favor of the Skills-Centered Approach on all the reading tests and spelling. The only test on which there is no difference is Vocabulary, which is a measure of hearing vocabulary and not a measure of reading.

Table 37

SIGNIFICANCE OF DIFFERENCES BETWEEN FULL-SESSION AND SPLIT-SESSION CLASSES, ADJUSTED STANFORD RAW SCORE MEANS

MEASURES BY	Full-Session		Split-Session				
METHOD	N	Mean	N	Mean	Diff.	t	P
Word Reading							
L.E.-A.V.	142	14.65	127	11.15	3.50	4.81	< .01
Ph.	184	15.63	93	15.12	.51	.66	N.S.
B.R.	233	14.90	52	4.16	.74	.88	N.S.
Paragraph Meaning							
L.E.-A.V.	134	10.60	102	8.01	2.59	3.45	< .01
Ph.	178	10.79	78	12.86	-2.07	-2.66	< .01
B.R.	226	13.72	49	11.44	2.28	2.53	< .01
Vocabulary							
L.E.-A.V.	118	16.49	96	12.50	3.99	7.22	< .01
Ph.	156	14.64	67	15.53	- .89	-1.55	N.S.
B.R.	219	15.41	48	18.47	-3.06	-4.31	< .01
Spelling							
L.E.-A.V.	118	9.26	96	4.94	4.32	7.26	< .01
Ph.	156	8.74	67	6.94	1.80	2.84	< .01
B.R.	219	8.98	48	5.78	3.18	4.67	< .01
Word Study Skills							
L.E.-A.V.	142	28.93	130	22.08	6.85	7.38	< .01
Ph.	181	28.77	93	27.40	1.37	1.40	N.S.
B.R.	231	28.53	52	21.77	6.76	5.78	< .01

The two Skills-Centered methods are compared in Table 39. The one significant difference is on Paragraph Meaning, on which the Basal Reader Method is significantly higher. On the other tests the differences fall within the range of chance fluctuations.

Table 38

SIGNIFICANCE OF DIFFERENCES BETWEEN TWO APPROACHES, ADJUSTED RAW SCORE MEANS FOR FULL SESSION CLASSES

TEST	Skills-Cen. Mean	Lang.-Exp. Mean	Diff.	t	P
Stanford[1]					
Word Reading	15.22	13.50	1.72	4.72	< .01
Paragraph Meaning	12.43	10.49	1.94	4.82	< .01
Vocabulary	15.09	15.09	0	0	N.S.
Spelling	8.87	7.92	.95	2.97	< .01
Word Study Skills	28.63	26.57	2.06	3.88	< .01
Gilmore Accuracy[2,3]	1.92	1.77	.15	0.11	N.S.
Gates Word Pronunciation[2]	9.31	7.71	1.60	1.69	N.S.

[1] N's range from 360 to 426

[2] N's range from 59 to 72

[3] Grade equivalents

Table 39

SIGNIFICANCE OF DIFFERENCES BETWEEN BASAL READER AND PHONOVISUAL METHODS FOR FULL-SESSION CLASSES

TEST	Basal Rdr. Mean	Phonovis. Mean	Diff.	t	P
Stanford[1]					
Word Reading	14.90	15.63	- .73	-1.426	N.S.
Paragraph Meaning	13.70	10.79	2.93	5.110	< .01
Vocabulary	15.41	14.64	.77	1.615	N.S.
Spelling	8.96	8.74	.22	.598	N.S.
Word Study Skills	28.53	28.77	- .24	- .317	N.S.
Gilmore Oral-Accuracy[2]	2.00	1.82	.18	.099	N.S.
Gates Word Pronunciation[2]	8.80	9.73	- .93	- .742	N.S.

[1] N's range from 156-233

[2] N's range from 31-40

The two Language-Experience methods are compared in Table 40. The differences are consistently in favor of the Audio-Visual Method. Four of the five Stanford scores show significant differences, and the consistency with which all seven comparisons are favorable to the Audio-Visual Method is impressive. It seems safe to conclude that there is a difference between the two Language-Experience methods, and that the Audio-Visual Method produced better results than the regular Language-Experience Method.

Table 40

SIGNIFICANCE OF DIFFERENCES BETWEEN LANGUAGE-EXPERIENCE AND AUDIO-VISUAL METHODS FOR FULL-SESSION CLASSES

TEST	L.E.-A.V. Mean	L.E. Mean	Diff.	t	P
Stanford[1]					
Word Reading	14.65	12.93	1.72	3.162	< .01
Paragraph Meaning	10.60	10.43	.17	2.814	N.S.
Vocabulary	16.49	14.51	1.98	3.974	< .01
Spelling	9.26	7.27	1.99	4.092	< .01
Word Study Skills	28.93	25.38	3.55	4.506	< .01
Gilmore Oral-Accuracy[2]	1.95	1.67	.28	.179	N.S.
Gates Word Pronunciation[2]	8.38	8.01	.37	.257	N.S.

[1] N's range from 118-284

[2] N's range from 19-48

The above comparisons are based on raw scores. To get a clearer idea of the magnitude of the differences, it is necessary to translate the raw score means into grade equivalents. When this is done, the results are as shown in Table 41, in which the grade equivalents have been rounded to the nearest tenth of a year. It is apparent that several of the raw score differences that were statistically significant either disappear or become minimal when translated into grade equivalents.

Within the Skills-Centered method approach, the Basal Reader method is slightly higher than the Phonovisual method in meaningful silent reading, in accuracy of oral reading, and on the Gates Word Pronunciation. Of these, only the superiority in Paragraph Meaning is significant. The Phonovisual method is higher only on the Stanford Word Reading test, and that difference is not significant. The lack of any superiority for the Phonovisual method, together with its lower means in Paragraph Meaning and Gilmore Accuracy, would seem to indicate that the Basal Reader method has a slight advantage.

Table 41

ADJUSTED GRADE SCORE MEANS FOR FULL-SESSION CLASSES

TEST	S.-C. Approach			L.E. Approach		
	B.R.	Ph.	Total	L.E.	L.E.-A.V.	Total
Stanford						
Word Reading	1.5	1.6	1.5	1.4	1.5	1.5
Paragraph Meaning	1.6	1.5	1.5	1.5	1.5	1.5
Vocabulary	1.5	1.5	1.5	1.5	1.5	1.5
Spelling	1.7	1.7	1.7	1.6	1.7	1.6
Word Study Skills	1.5	1.5	1.5	1.4	1.5	1.4
Gilmore Oral-Accuracy	2.0	1.8	1.9	1.7	2.0	1.8
Gates Word Pronunciation	2.4	2.3	2.3	2.3	2.3	2.3

At this point another look at the Fry and Karlsen word lists is in order. These two tests were constructed especially for use in the 27 co-operating projects, as measures of ability to read unfamiliar but phonetically regular words. The means on these tests (see Table 32) show no significant differences between the Basal Reader and Phonovisual methods. If the Phonovisual method had been particularly successful in teaching word attack skills, it should have shown significant superiority on these two word lists, and on the Stanford Word Study Skills. Such is not the case. On both word lists P is much greater than .05, showing a lack of significance.

Within the Language-Experience Approach the Audio-Visual method is slightly higher on Word Reading, Spelling, Word Study Skills, and Gilmore Accuracy; the two L.E. methods are equal on the other three measures. The superiority of the Audio-Visual Method over the regular Language-Experience method remains visible in the grade scores.

The Audio-Visual method also shows up as equal to the Skills-Centered Approach on six of the seven tests, and slightly higher on the Gilmore. The regular Language-Experience method is the lowest of the four methods on Word Reading, Spelling, Word Study Skills, and Gilmore Accuracy. It is obvious, then, that three of the four methods--B.R., Ph., and L.E.-A.V.--came out nearly equal in results, and the fourth, the regular L.E. method, achieved slightly poorer results and is the reason for the slight advantage of the Skills-Centered Approach over the Language-Experience Approach.

Evaluation of Results for the Total CRAFT Population

The expected average first-grade performance at the end of May is expressed as a grade equivalent of 1.9. The CRAFT instructional period had started on October 19, 1964, so that there had been a little less than eight months of reading instruction. The reading readiness program of the preceding month should, however, be included. A grade equivalent of 1.9 seems, then, a reasonable basis for evaluation.

On the two individual tests for which grade norms are available, the CRAFT mean grade equivalent for all full-session classes is 1.85 on the Gilmore Accuracy, and 2.3 on the Gates Word Pronunciation. The Gilmore is known to have based its norms on those for the Metropolitan Achievement Test, which is the one usually employed in citywide surveys in New York City. The derivation of the Gates norms has not been specified. It seems safe to conclude, however, that on these two measures the CRAFT pupils did not fall appreciably below the norm.

The Stanford Primary I Battery, Form X, appears to have norms which are more severe than those of the Metropolitan, or those of previous editions of the Stanford, and are estimated to give grade scores three or four months lower. CRAFT mean grade scores for all full-session classes are 1.5 on the three reading scores and Vocabulary, and 1.7 on Spelling. Considering that on seven readiness measures the median percentile of the CRAFT pupils was 23, and considering the probable discrepancy between current Stanford norms and norms of other tests, the CRAFT results may be regarded as satisfactory.

The San Diego Inventory of Pupil Attitude

One of the posttest measures prescribed for the cooperating first-grade reading studies was an attitude scale developed in San Diego for measuring the degree of interest in reading and positive attitude toward reading. It was given as a group test during the posttest period. The examiner read each statement, then the pupils marked the "yes" or the "no" on their answer sheets. The score is the number of answers indicating favorable attitude.

The results for the four teaching methods are shown in Table 42. The Basal Reader method had the highest mean, and is significantly higher ($P < .01$) than each of the other three methods. The Phonovisual method is lowest. The difference between the two Language-Experience methods is not significant. The difference between L.E. and Ph. is probably significant ($P < .05$) but the difference between L.E.-A.V. and Ph. is not significant.

Table 42

RESULTS OF SAN DIEGO INVENTORY OF PUPIL ATTITUDE

METHOD	N	Mean	S. D.
Basal Reader	277	17.20	4.27
Phonovisual	276	14.98	5.14
Language Experience	274	15.87	5.33
L.E. Audio-Visual	259	15.58	5.61

These results round out the picture of outcomes. The Basal Reader method (with this population) was not only slightly superior in developing silent reading comprehension, but also achieved significantly highest scores in reading attitude. The two Language-Experience methods were about equal in pupil attitude, although the L.E.-A.V. method surpassed the L.E. method in reading and spelling skills. The Phonovisual method, which almost equaled the Basal Reader method in results, made the poorest showing in pupil attitude.

Consideration of Possible Interfering Variables

Attention will now be given to a number of factors which could have a bearing on the interpretation of the results, in addition to the full-session--split-session problem which has been analyzed above.

Effect of Preschool Experience

A special study of the impact of preschool experience was made using the CRAFT children in two schools (eight classes, 147 children). The children who had had kindergarten experience were higher than the non-kindergarten children on five of the six pretests, but none of the differences were significant at the .01 level (see Table 43).

Table 43

PRETEST RESULTS FOR SAMPLES OF KINDERGARTEN AND NON-KINDERGARTEN CHILDREN

Reading Readiness Measures	Kindergarten Mean	Non-Kgn. Mean	Diff.	t	P
Metropolitan Word Meaning	5.10	5.45	- .35	.967	N.S.
Metropolitan: Listening	7.04	6.62	.42	.995	N.S.
Murphy-Durrell Phonemes	10.90	8.45	2.45	2.026	< .05
Murphy-Durrell Letter Names	24.06	22.25	1.81	.761	N.S.
Murphy-Durrell Learning Rate	8.83	7.53	1.30	1.992	< .05
Thurstone Identical Forms	7.37	5.97	1.40	1.194	N.S.
	N = 71	N = 76			

To the extent that kindergarten and other preschool experience helps a child to improve in readiness for first grade work, it should influence his ability to perform on readiness tests as well as to learn to read. The effects of preschool experience do not seem to have made very great differences on the pretests. The differences that did exist were taken care of by the covariance adjustments, which removed the influence of differences in readiness from the final test results.

Of course, elaborate precaution had been taken in the initial assignment of pupils to balance the assignment of kindergarten and non-kindergarten children equally to the two teaching methods in each school. The assignment procedures and the covariance adjustments, taken together, rule out the possibility of preschool experience having favored one teaching method over another.

Sex of Pupils

The distribution of boys and girls to the four instructional methods in the CRAFT Project was approximately even. The percentages are shown in Table 44. With such small differences, an effect of sex differences on outcomes is unlikely.

In addition, the sample studied for the effect of preschool experience was also studied to see if there were any significant sex differences on the pretests. The results are shown in Table 45. Three pretest favored the girls, three favored the boys, and difference was significant.

Table 44

PERCENTAGES OF GIRLS AND BOYS FOR THE FOUR METHODS

METHOD	Girls	Boys	Total
Basal Reader	50.9%	49.1%	100%
Phonovisual	51.9%	48.1%	100%
Language-Experience	48.4%	51.6%	100%
Language-Experience Audio-Visual	51.4%	48.6%	100%
TOTAL	50.6%	49.4%	100%

Finally, the covariance adjustments took care of any slight effects of sex differences that might have influenced readiness for learning.

Table 45

SEX DIFFERENCES ON THE PRETESTS

READINESS MEASURE	Girls Mean	Boys Mean	t	P
Murphy-Durrell				
Phonemes	10.25	9.04	.990	N.S.
Total Letter Names	23.90	22.37	.643	N.S.
Learning Rate	8.01	8.29	- .422	N.S.
Metropolitan				
Word Meaning	4.96	5.59	-1.750	N.S.
Listening	6.69	6.95	- .622	N.S.
Thurstone Identical Forms	6.94	6.36	.491	N.S.

Intercorrelations of Many Factors with Posttests

In order to locate additional factors that might cut across the effects of the instructional methods, an intercorrelation matrix was computed for 54 variables. The results are shown in Table 46. In addition to the pretests and posttests, the variables include 13 scores based on OScAR-R, six scores based on the teachers' Logs, and a variety of other items on which information had been collected. The scores used are the 48 class means. For the seven posttests that were adjusted by covariance the adjusted class means were employed. To save space, decimal points have been omitted.

Table 46 was inspected for significant correlations. An r of .37 (P = .01) was taken as the minimum to be considered significant.

The four pretests used in the covariance analyses generally had nonsignificant correlations with the posttests, showing that the covariance adjustments had been effective. The remaining pretests, which could not be used for covariance because of missing classes, generally showed significant correlations with the posttests.

TABLE 46

INTERCORRELATIONS AMONG CLASS MEANS ON 54 VARIABLES

MEASURE	Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54
OScAR-R Empirical L-E	1	100	95	-04	-27	-03	-06	-03	01	09	01	29	10	-18	-20	-21	00	05	09	-01	-15	02	-06	-11	-19	-17	22	07	05	08	22	08	-07	-10	-07	00	-01	-13	-03	-06	-04	-11	09	-10	15	01	14	16	19	15	10	25	-14	-03	-14
" " Sk-Ctr	2		100	02	-27	-49	55	-09	25	31	-04	30	08	-19	-26	-24	10	01	05	-02	-09	-03	-16	-23	-27	-29	21	01	05	04	22	06	-10	-08	-01	-07	-03	-06	-03	-01	01	-09	16	-09	23	-01	08	20	14	07	11	18	-18	-02	-14
" " L-E, high A-V #	3			100	-26	00	00	-05	-08	-29	08	-43	00	04	00	62	01	-20	-25	-06	23	20	-21	-14	11	05	05	19	27	03	-11	-00	30	03	42	26	41	60	46	32	40	11	-02	21	22	31	01	24	21	26	-05	-02	10	38	-02
" " L-E, low A-V #	4				100	-00	-00	70	-12	07	-01	17	-09	19	12	-34	-12	33	31	20	30	-10	10	01	-04	-01	-34	-00	02	11	-25	18	-08	16	-20	-01	-24	-20	-20	-24	-25	-07	-03	30	-17	-11	-04	-13	05	-03	-24	-16	-27	-29	38
" " Phonovisual #	5					100	-30	27	-34	-42	-20	-41	-37	-45	28	52	-11	28	-40	52	-19	-23	42	06	-25	-20	03	-19	-12	-07	24	02	-15	-37	-18	-13	-23	-33	-13	-05	-06	-36	-05	-05	-03	-18	-01	-12	40	-12	10	03	-17	-06	-10
" " Basal Reader #	6						100	12	37	14	02	18	26	62	-35	04	-23	-18	-00	-16	25	01	-13	22	31	23	-16	-05	-13	-12	-31	-26	04	30	09	-02	05	58	27	33	38	26	37	03	29	12	10	16	08	11	-23	-00	-17	03	20
" A Priori L-E	7							100	-32	-26	-02	-03	02	11	05	-15	-22	41	35	25	22	-01	11	05	-15	-14	-07	-01	-07	04	-10	06	-13	05	-10	-07	-19	-16	-10	-22	-17	08	-22	08	12	10	02	07	30	07	-08	10	-07	02	15
" " Sk-Ctr	8								100	05	05	04	14	-04	-38	-21	-30	-05	14	-15	19	-09	-16	-26	02	-08	-06	05	00	-04	-07	05	02	24	15	-18	01	11	12	11	04	-01	24	08	-04	-02	-08	09	-42	-14	03	10	[illegible]	[illegible]	06
" " Control	9									100	09	30	-13	07	-01	-11	05	-26	-15	-21	-30	-27	-28	-15	-32	-26	-23	-23	-13	-15	-07	-16	-30	-32	-28	-22	-28	-21	-25	-12	-09	13	-03	-32	-21	-33	-15	-23	05	03	06	-02	10	[illegible]	-08
" " Pos. Motiv.	10										100	-03	69	26	21	-01	-32	-06	06	03	29	23	-01	-19	16	16	19	17	20	24	18	18	10	16	06	21	14	06	01	-04	02	-13	-09	-24	08	11	11	05	-26	-10	14	-03	06	-06	14
" " Neg. Motiv.	11											100	25	07	-14	-17	-14	30	39	07	15	25	-23	18	07	01	-12	-18	22	27	-11	-19	23	16	06	29	07	-07	-07	02	-01	08	00	21	03	-11	29	-02	-06	-18	-15	08	-08	-17	13
" Total Interchanges	12												100	19	05	-07	-16	24	22	13	19	31	-04	-11	15	10	24	19	16	24	13	12	35	17	01	32	33	10	02	03	02	-08	-07	-05	15	14	28	21	-11	-33	02	31	-03	-13	-05
" % Meaningful Interchanges	13													100	13	06	-48	08	01	07	17	09	08	17	28	32	-07	02	10	05	-14	-01	01	22	06	17	14	25	12	11	14	03	01	-09	14	13	17	09	07	19	04	-25	-07	14	-06
Logs - Sk-Ctr. vs. L-E	14														100	27	-32	17	-13	14	-20	-26	04	-19	02	01	24	-11	-04	00	40	05	-02	-00	-03	03	-03	-17	-31	-27	-34	-12	-22	-16	-10	-08	01	02	16	-02	06	-18	00	26	-04
" A-V Day	15															100	-12	-19	-45	10	03	03	00	02	15	11	04	03	-14	-10	12	-02	02	-10	04	13	-03	15	08	01	01	18	-09	07	-01	03	-32	06	07	-01	-13	-27	02	24	-05
" Ph. vs. B. R.	16																100	28	04	-37*	-08	-16	-03	-15	-09	-27	-20	-03	-10	-13	-21	00	-04	-16	-25	-15	06	-08	-03	-05	-18	-10	08	-01	-11	-07	-22	-07	-10	05	-16	03	02	-08	-14
" Total Time	17																	100	50*	80*	29	25	13	-05	14	13	04	-08	36	46*	06	00	29	29	23	31	24	-12	-10	-02	-15	-18	08	18	26	23	40*	11	17	-18	03	07	-14	-11	-03
" Reading Time	18																		100	-02	45*	40*	-00	-07	00	-05	00	-03	54*	61*	-06	-07	42*	41*	20	44*	34	-04	08	21	11	-02	02	29	09	15	32	10	-10	-04	-10	04	-13	-28	04
" Supportive Time	19																			100	-02	-04	16	-02	16	18	06	-08	05	12	12	07	06	06	15	08	04	-13	-19	-17	-26	-21	08	00	25	17	35	06	08	-19	11	06	-07	06	-06
" " Rate	20																				100	71*	16	09	17	12	-00	29	50*	50*	-24	18	51*	59*	39*	50*	40*	42*	36	38*	39*	09	19	35	23	20	-02	-02	-15	-08	-08	-22	09	-21	11
Fry Phonetic Word List	21																					100	-38	13	-18	-25	-46*	-10	17	21	-56*	-34	50*	17	15	37*	26	16	42*	34	34	04	06	36	02	-04	22	-29	-39*	-13	-29	13	-30	-49*	38*
Karlsen Phonemic Word List	22																						100	28	30	36	-07	03	23	25	-06	08	23	27	03	26	23	02	26	21	22	-18	16	28	21	27	10	07	01	10	-18	04	-46	-18	-07
Writing Sample - Mechanics	23																							100	04	11	-17	-02	06	09	-27	-15	01	04	01	10	07	04	20	17	15	-13	15	22	19	18	15	06	00	09	02	20	-03	11	11
" Words Spelled Corr.	24																								100	96*	17	19	24	26	09	13	34	38*	19	35	21	21	21	14	20	14	16	20	10	11	07	16	-09	04	-26	-17	24	-09	03
" Running Words	25																									100	07	17	20	21	-00	12	27	31	14	32	19	17	20	08	14	10	22	15	05	13	04	10	-02	14	-08	-16	26	-09	02
" Lucidity, Rec.	26																										100	45*	-07	04	61*	21	16	31	22	17	11	24	20	24	21	26	-05	-08	41*	39*	-02	28	14	-04	28	22	04	-02	-01
" Lucidity, Unique	27																											100	09	13	19	80*	25	24	25	27	23	29	34	21	24	22	01	01	16	26	-06	05	-03	00	08	-06	-04	-17	20
Gilmore Oral Accuracy: Adjusted	28																												100	87*	05	20	61*	53*	34	69*	68*	27	35	53*	49*	-32	03	31	06	06	38*	09	-27	-18	01	-11	09	-28	-09
Gates No.4 List: Adjusted	29																													100	17	23	61*	51*	21	77*	62*	15	33	42*	36	-23	-02	19	12	02	30	10	-17	-01	-07	-03	-03	-20	04
Writing Lucidity, Rec., Adjusted	30																														100	29	01	09	08	08	01	01	-00	09	06	-01	-32	-18	06	-02	-08	26	21	-01	13	20	07	02	08
Writing Lucidity, Unique: Adjusted	31																															100	07	16	10	11	12	02	05	-02	04	-05	-27	-12	-19	-15	-07	02	09	05	06	-09	00	-09	13
Stanford Word Reading: Adjusted	32																																100	69*	60*	84*	79*	51*	49*	57*	44*	02	31	41*	29	30	26	12	-16	-16	29	-04	07	-26	02
" Par. Meaning: Adjusted	33																																	100	63*	60*	63*	50*	38*	44*	39*	09	24	37*	22	24	20	10	-05	05	-29	-02	10	-09	16
" Vocabulary: Adjusted	34																																		100	43*	43*	46*	27	36	31	09	26	23	17	21	14	-03	-11	-17	-12	-07	14	-02	13
" Spelling: Adjusted	35																																			100	80*	46*	56*	63*	54*	-07	21	38*	31	31	40*	19	-03	-00	-18	-13	-12	-35	07
" Word Study Skills: Adjusted	36																																				100	59*	58*	67*	55*	-30	27	25	28	29	49*	24	-04	-06	-20	04	07	-21	-15
Murphy-Durrell Phonemes	37																																					100	79*	84*	81*	07	37*	30	48*	48*	20	23	-04	-06	-04	-12	-00	-15	-12
" Capital Letter Names	38																																						100	93*	95*	12	32	46*	50*	47*	19	24	-04	16	-14	-16	-14	-31	01
" L. C. Letter Names	39																																							100	95*	-07	39*	48*	59*	50*	40*	39*	-01	08	00	-19	-06	-40*	-20
" Total Letter Names	40																																								100	01	28	43*	53*	44*	34	32	-01	08	-00	-18	-06	-41*	-15
" Learning Rate	41																																									100	06	03	10	21	-52*	-21	04	14	-12	-05	-04	13	32
Thurstone Pattern Copying	42																																										100	30	30	35	07	02	-14	04	08	-24	06	-16	05
" Identical Forms	43																																											100	15	34	21	20	-24	-24	-23	-16	-04	-37*	23
Metropolitan Word Meaning	44																																												100	78*	33	30	02	10	19	03	-20	-05	-21
Metropolitan Listening	45																																													100	25	23	-13	-01	21	-04	-22	-07	-08
Length of School Day	46																																														100	32	-02	-25	15	08	-25	-27	-07
San Diego Inventory - Pre: Basic	47																																															100	10	-10	04	09	-20	09	44
" " " " Indiv.	48																																																100	44*	-15	18	-06	03	-19
" " " " L. E.	49																																																	100	-15	-12	-12	19	-04
Class Size	50																																																		100	-10	-13	-11	-11
Teacher Attendance	51																																																			100	01	-14	-14
San Diego Inventory - Post: Basic	52																																																				100	11	-31
" " " " Indiv.	53																																																					100	-21
" " " " L. E.	54																																																						100

*Based on 40 class means; P = .01 when r = .37 or higher
#Based on 24 class means; P = .01 when r = .52 or higher

The OScAR-R

The Observational Scale and Rating-Reading, devised by Donald Medley for use in this project, resulted in thirteen different measures. Several of these were designed to see if the four instructional methods could be differentiated by the observational procedure. Other scores were based on the assignment into categories of kinds of remarks made by the teacher to pupils. A full description of OScAR-R and its directions for use may be found in the Appendix.

The OScAR-R turned up no significant correlations out of 30 r's. Even the "dynamic" scales (categories of teacher statements) showed no significant r's with any of the posttests. It had been hoped that those scales, which attempted to measure significant aspects of teaching style, would reveal something about teacher effectiveness.

Teacher Logs

A detailed report on the Teacher Log data has already been presented at a professional meeting and is to be found in the Appendix. The instructions to teachers on how to allocate their Language Arts instructional time are also presented in the Appendix. Here only some of the highlights will be noted.

At the beginning of this study the teachers were accustomed to spend considerably less instructional time on reading and related activities than the CRAFT plans required, and it took several months before most of them approximated the three hours a day expected. On total time the two approaches were nearly equal (Skills-Centered, 170 minutes; Language-Experience, 175 minutes), and the small difference is due to the absence of split-session classes in the L.E. method.

There was a quite large difference between the two Approaches in the proportion of time devoted to Reading and to Supportive Activities. The Skills-Centered Teachers spent 55 percent of their time on Reading; the Language-Experience teachers spent only 39 percent of their time on Reading, and 61 percent on Supportive Activities.

The intercorrelations in Table 46, which were not available when the Teacher Log report was written, show a very highly significant fact about teachers' use of time in relation to posttest results. Neither total Language Arts instructional time nor Supportive Activities time had significant correlations with the posttests. But the total Reading time had correlations that were both significant and substantial, with the Stanford Word Reading, Paragraph Meaning, and Spelling; Gilmore Accuracy and Rate; and Fry and Gates word lists. These correlations ranged between .40 and .61.

It would be tempting to conjecture that what really counts in teaching beginning reading to disadvantaged children is how much time one spends in the direct teaching of reading skills, and that the method of instruction is of comparatively little importance. This would be a gross oversimplification, as can be seen by considering the data in Table 47.

Table 47 shows the average number of minutes per day for the four methods. The Audio-Visual teachers spent the least time in Reading activities--61 percent as much as the Skills-Centered teachers, and 70 percent as much as the other Language-Experience teachers. Yet their results equaled those of the Skills-Centered teachers and surpassed those of the L. E. teachers.

TABLE 47

MEAN INSTRUCTIONAL TIME PER DAY IN FOUR TEACHING METHODS

	B.R.		Ph.		L.E.		L.E.-A.V.	
Minutes per Day	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
Total	169.1	23.52	170.8	28.64	197.	25.12	157.8	20.11
Reading	94.9	18.64	94.8	11.86	83.2	13.42	57.7	12.78
Supportive Activities	74.4	16.1	76.1	31.12	113.8	20.58	100.1	18.02

The specific time used by L.E.-A.V. teachers for audio-visual activities was classified in the Log under Supportive Activities and averaged 24 minutes per day. If we add this to their Reading time of 57.7 minutes the result is 81.7 minutes, still slightly under the L.E. mean and well under both Skills-Centered means.

It has already been shown that the L.E.-A.V. Method equaled the two Skills-Centered Methods in overall reading results and surpassed the regular L.E. Method. The total time per day was lowest for the A.V. teachers. Had they spent more time on reading skills, their results might have been still better.

Chronological Age

Mean ages were calculated for the four teaching methods. They ranged from 79.5 months to 79.6 months, a range of one-tenth of a month that could not possibly have a bearing on the outcomes of the methods.

Pupil Attendance

The mean number of days absent per pupil ranged from 14.18 for Phonovisual to 16.42 for Language Experience. None of the differences in attendance between pairs of methods was significant at the .01 level, so it is very unlikely that pupil attendance differentially influenced the posttest results.

Class Size

The mean number of CRAFT children per class, on May 1, 1965, ranged from 29.75 in L.E. to 28.15 for L.E.-A.V., with Phonovisual at 28.42 and Basal Reader at 28.80.

The mean class register on May 1, 1965, for all CRAFT classes was approximately 33 pupils. Of these, 28 or 29 had taken the pretests and were included in CRAFT statistics. The others had entered some time during the instructional period and had not taken the pretests; they were therefore excluded from the statistical treatment. Whether there were 28 CRAFT children or 29 should have had no bearing on the results. The principals had been instructed to keep the total class registers evenly balanced by replacing children who left the CRAFT classes, and did so. The high registers are typical of class size in the New York City schools, and therefore CRAFT findings should be applicable to the city schools with similar populations.

Teacher Attendance

The data on teacher absences are shown in Table 48. Although the L.E. teachers had twice as much absence as any other group, the difference does not reach the .05 level of significance (because of its very large standard error). The absence rates in the other three groups are very much alike. The large mean and S.D. for the L.E. teachers are due to two teacher replacements. One of the L.E. teachers was promoted out of the classroom at midyear. Another teacher took a leave because of poor health. These changes probably offset each other in terms of the quality of instruction.

TABLE 48

MEANS AND STANDARD DEVIATION FOR SELECTED TEACHER VARIABLES

Variable	B.R.		Ph.		L.E.		L.E.-A.V.	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
Teacher Absence	7.96	4.58	6.34	4.21	16.37	23.47	6.50	3.52
Years of Teaching Exper.	3.83	3.10	8.33	9.63	9.25	9.25	10.25	13.16
First-Grade Tchg. Exper.	2.17	1.27	3.42	3.55	3.83	3.59	5.92	8.89
N	12		12		12		12	

Total Teaching Experience

The teachers varied widely in age and teaching experience; the latter seemed more promising for analysis. The second line in Table 48 shows that the B.R. teachers had a mean of 3.83 years of teaching experience, while the other three groups had means between 8.33 and 10.25. The difference between the B.R. teachers and the L.E. teachers is significant ($P < .05$); the other differences fail to reach the .05 level.

If experienced teachers are more likely to get good results than inexperienced teachers, the B.R. method was slightly handicapped. If, on the other hand, youth and inexperience made for flexibility and amenability to instruction and supervision, the strong in-service training program of the CRAFT Project could have turned the inexperience of the B.R. teachers into an asset.

It is probable, also, that the firm structure and detailed directions in the manuals used by the Skills-Centered teachers made up to some extent for lack of teaching experience. Inexperience may have mattered less in this method than in the Language-Experience Approach.

First-Grade Teaching Experience

The four groups of teachers are compared in terms of amount of teaching experience in the first grade, on the third line of Table 48. While the B.R. group had the lowest mean and the L.E.-A.V. group had the highest mean, none of the critical ratios reached the .05 level of significance. As with total teaching experience, there is no clear evidence that the differences between the methods in this teacher characteristic should have had any specific effect on the outcomes of the study.

Willingness to Repeat the Study

After the posttest period was over, and before the teachers were given any information about the outcomes, all of the first-grade teachers were invited to participate in a first-grade replication study, in which each teacher would use the same method she had learned with a new class of first-grade children.

Of the 48 teachers, 32 volunteered for the replication study. Of the other eighteen, thirteen had reasons unrelated to the methods, such as a maternity leave or husband moving out of the city. The other teachers leaving the study, because of dissatisfaction with the method, were divided among the teaching methods as follows: B.R., 2; Ph., 0; L.E., 2; and L.E.-A.V., 1. There does not appear to be a significant difference attributable to adverse reaction to the project.

Effects Attributable to Consultants

So far as the CRAFT research staff has been able to discover, there were no evidences of differences in the quality of instruction and help provided by the four reading consultants. All four were mature women with years of classroom teaching experience, and with substantial previous experience as reading consultants. They submerged any personal preferences for a particular way of teaching reading and responded in a highly professional way to the challenge of trying to help teachers in all four methods to which they were assigned.

This subjective impression is reinforced by the practically complete absence, in the analysis of variance tables, of any significant interactions by schools, or by method interactions within schools. If a particular method had been given an advantage by the consultant in a particular district, this should have shown up as a school interaction. The absence of such interaction supports the conclusion that there are no differential effects attributable to differences in consultant supervision.

Summary of Evidence Concerning Possible Interfering Variables

This section of Chapter V has looked at a number of factors, other than the teaching methods, which seemed to have potentiality for affecting the results and obscuring the relationships between teaching methods and results. The following have been considered: (1) effect of preschool experience; (2) sex differences in readiness; (3) aspects of teaching style as classified and scored with the OScAR-R; (4) Log data, including total Language Arts instructional time, Reading Time, and Supportive Activities time; (5) chronological age of pupils; (6) pupil attendance; (7) class size; (8) teacher attendance; (9) total teaching experience; (10) first-grade teaching experience; (11) willingness to repeat the study; and (12) effects attributable to consultants. Of all of these variables, only total Reading time was significant. Highly significant differences in teacher effectiveness were found within each method, but efforts to measure components of effectiveness were not successful.

What Characteristics of Books Determine Pupils' Reactions to Them?

The following analysis is based on replies to a questionnaire circulated among teachers, and on observation of the children by the consultants and research staff.

The general conclusion drawn was that the choice of favorite books by the CRAFT disadvantaged children is similar to that of middle-class children. As with middle-class children, plot element is extremely important. The tried and true stories heavy with plot that children have always liked are spellbinders, regardless of socio-economic status: stories such as The Three Bears, Peter Rabbit, Gingerbread Boy, and Little Red Hen. Books written comparatively recently which have become classics in a relatively short time also seem to intrigue CRAFT children, for example, Make Way for Ducklings by McCloskey, Caps for Sale by Slobodkin, the Angus books, particularly Angus and the Ducks by Flack, Millions of Cats by Wanda Gag, Little Toot by Gramatky, Curious George by Rey, the Pretzel Books, the Noisy Books, Tresselt's Johnny Make Believe, Duvoisin's White Snow, Bright Snow, Petersham's Box With Red Wheels, Slobodkin's Friendly Animals, Tresselt's Rain Drop Splash. All of these and many others were well-liked by the CRAFT children.

Several sources of such stories are: Stories That Never Grow Old (Platt and Munk), Stories of Animals (Whitman and Co.), Folk Tales Children Love (Platt and Munk), and Tall Book of Nursery Tales (Harper & Row).

Are books more likely to be favored if they are integrated? It is most desirable to have multi-ethnic illustrations. Even a plotless preprimer was observed being hugged and loved and called "the best story," regardless of the dearth of story; the only explanation possible is the tendency of Negro children to identify themselves with Negro children in pictures. Integrated illustrations, however, are not enough. The story must be a good one; the plot element must be strong. Among the integrated books several were quite successful with CRAFT first-graders: Keats's Whistle for Willie, Snowy Day, My Dog is Lost, Terry's My Dog Rinty, and Williamson's The No-Bark Dog. As a basis for good discussion of urban social studies problems, Bank Street's Around the City and Uptown, Downtown served well, as did Chandler's Let's See the Animals, the primer in the new Chandler Language Experience Series. The children did not, however, favor didactic integration in their stories. For example, one book which centered attention on the introduction of a Negro boy to a white boy was unpopular, apparently because there was no dynamic plot element, and it seemed pointless to first-grade children.

As important as plot element and integrated characters is the manner of presentation. The CRAFT staff, both Negro and white, feel very strongly that the differences in taste between middle-class and Negro children has been emphasized far beyond reality. Even the stories of kings and queens and princes and princesses, if they are good ones--such as the Cinderella story, in which the disadvantaged child can have some identification with the poor disadvantaged Cinderella--are quite successful when the presentation is good.

Elements of presentation which seem effective are that: (1) there be a personal rapport with the teachers; (2) the group be small and clustered near the teacher; (3) her gestures be broad; (4) her voice be dramatic in intonation and appropriate to the dramatic impact of the story; and (5) pictures be shown along with the telling of the story. It appears important that the story be narrated by a teacher who is sensitive, and can make quick changes in language appropriate to the comprehension level of her young listeners. Another observed source of effectiveness is teacher avoidance of didacticism in the course of the first reading of the story. She should tell the story right through, if necessary in her own words and showing the pictures. It appears that if the story is told without interruption, the child is more likely to sustain attention to the end. After the initial relating of the story, the child's enjoyment of it will sustain him through rereading in the original language, and questioning to check comprehension and to teach vocabulary.

Chapter VI

DISCUSSION OF THE RESULTS AND THEIR IMPLICATIONS

Need for Caution in Interpreting the Results

When the CRAFT Project was first planned, months before work began with teachers and pupils, the planning group was in full agreement that the results of the first year of the study were unlikely to provide conclusive results. One of the reasons for this conviction was the knowledge that the teaching methods selected for use would not be equally familiar to the teachers. It was expected that the Language-Experience teachers would take longer to become comfortable with their approach than the Skills-Centered teachers. This was certainly borne out by the observations of the consultants and research staff. The Audio-Visual Method did not really begin to differentiate from the other Language-Experience Method until January, and thus was the last to become fully operative.

A second reason was familiarity with the outcomes of many previous studies of reading readiness and beginning reading instruction, in which apparently strong differences in favor of one procedure at the end of the first grade seemed to fade out and sometimes to reverse themselves by the end of the third or fourth grade. Accumulated evidence is abundant on the need to study long-term as well as short-term results of teaching procedures. This seemed especially true of work with disadvantaged Negro children, with whom intensive large-scale research has just begun.

A third reason was a suspicion that available reading tests, including those prescribed for the cooperating studies, tend to be inherently biased for or against particular teaching procedures. As an example, one may consider the vocabulary utilized in a test like the Stanford Primary I. The manual is not specific as to the source of the vocabulary used, but by inspection it seems to emphasize the words commonly taught in basal reader series for the primary grades. These are certainly words that children need to be able to read. Children taught by Language-Experience Methods, however, learn to read many words imbedded in their social experience, which are outside of the core basal reader vocabulary. Present tests do not attempt to sample this large, uncontrolled vocabulary.

By the end of the second or third grade, however, the total vocabularies for the two approaches should be far more alike as each broadens its areas of reading, and test bias for or against a teaching method should be less of a problem.

A different kind of bias can be found in the word list tests. Two of them were specifically designed along lines that should produce bias in favor of methods that stress phonetic or phonemic principles.

These three concerns -- unequal starts, delayed effects, and biased tests -- caused us to begin planning continuation and replication studies.

The Continuation Study

A proposal to continue to study the CRAFT children through the second and third grades has been approved by the U.S. Office of Education for support, and is now approximately half-way through the second grade. Eleven of the original twelve schools are participating. There are 38 second-year CRAFT classes, divided almost evenly among the four teaching methods. An intensive teacher-training program has been designed to keep the four methods distinctly different through the second year. Continuity of controls and experimental precautions is being maintained.

In the third grade no attempt will be made to keep classes together or to control teaching procedures. The majority of the children will have moved to different schools. Procedures have been set up for tracing them to obtain their scores on the city-wide reading tests.

The Replication Study

A replication of the first-grade study is also being conducted, with support from The City University of New York and the Board of Education of the City of New York. Twenty-six first-grade teachers are employing the same methods they used last year, each with a new class of children. In-service training and supervision are being continued, but at a less intensive pace. Pretests were administered early in the year and posttests will again be used after 140 instructional days.

The replication study will, it is hoped, provide a more valid test of the first-grade methods than was possible in the present study. With a year of training and experience behind them, the teachers should be able to demonstrate what each method can produce in the hands of competent teachers trained and experienced in its use. The excitement of the first year (and its unmeasurable Hawthorne effects) has died down, and the outcomes should represent more fairly what would happen if the method were officially adopted.

The Pilot Study

Four of the CRAFT first-grade teachers are currently trying a new combination method of teaching. This is a combination of the Language-Experience, Audio-Visual Method with the Phonovisual word attack program. The results which the same teachers achieved in 1964-65, as well as the results of the Replication Study, will provide a basis for evaluation.

Tentative Nature of Present Findings

The present report is, therefore, a progress report on the first year of a three-year project. Any conclusions presented in Chapter V, and summarized in Chapter VII, must be considered tentative and subject to further testing in the continuing project.

Impatience for the immediate application and dissemination of research findings is understandable. Pressure from school systems and upon school systems from interested citizens,has been growing in intensity. In a research area as vitally important as beginning reading instruction, the temptation to be content with short-term results is very strong. But the complexities of doing valid research in this difficult area are many. Patience in holding out for long-term effects, and willingness to try, try again, should eventually produce results that will be firm and dependable.

Comments on the Teaching Methods

The Two Main Approaches

At the beginning, there was considerable difference between the reactions of the teachers in the two approaches.

The teachers in the Skills-Centered Approach in general developed routines quickly and felt relatively comfortable and secure because they had very specific directions on what to teach and how to teach it. They had scope for resourcefulness and initiative in the teaching of social studies and science, in which they were permitted to use an experience chart procedure for recording what the children had learned as long as they did not use them for reading instruction. They were also encouraged to utilize story-telling, show-and-tell periods, and dramatizations; and to provide for supplementary independent reading as the children became ready for it. They were to employ an enriched Skills-Centered Approach rather than an impoverished one.

The Basal Reader teachers reported problems in class management, in the handling of reading groups, and in using the full allocation of time. They also had to get used to following the manual closely and to getting effective returns from the workbooks, which some tended to use as busy-work rather than as skill-development practice.

The Phonovisual teachers responded with a good deal of enthusiasm at the beginning. They were pleased to have materials that the other groups were not allowed to use, and they found the teaching method clear, explicit, and easy to follow. Having the Phonovisual practice period at a different time of day from basal reader activity made daily planning comparatively simple. As the year wore on, some dissatisfactions developed. The daily skills practice began to seem repetitive and monotonous. Some children learned letter sounds by rote, without developing insight into word analysis. Others could write words correctly from dictation but then could not read them. On the whole, however, the morale of the Phonovisual teachers remained fairly high.

During the first two months of instruction, the teachers in the Language-Experience Approach expressed many dissatisfactions. Relatively few had any background for this approach, and both the rationale underlying the procedures and the working out of details day by day were unfamiliar. In the workshop sessions many complained that the directions they were given were not specific enough. They wanted detailed recipes to follow. They found it hard to accept and act on the principle that a main purpose of teacher planning was to release spontaneity of language expression in the children. They needed to be led step by step through the stages of selecting a group experience, preparing for it, discussing it with the children in advance, getting children to observe and remember the experience, discussing it afterward, and crystallizing expression into charts for reading and writing. The idea of encouraging children to talk and write about topics that were of individual interest and to help each child with the special words he wanted to learn, also came slowly. By the Christmas vacation, however, most of these teachers had made progress in mastering the approach and their morale had improved accordingly.

Audio-visual equipment began to arrive in the L.E.-A.V. classrooms before mid-year, and training in its use was instituted. For each new piece of equipment, the use of the machine had to be taught, relevant materials had to be ordered and distributed, and ways of using it for reading instruction had to be developed and disseminated. The L.E.-A.V. Methodology developed constantly as new ideas and procedures were added.

Tentative Implications of the Results

A number of tentative conclusions can be drawn from the first year of the study.

1. The results of the CRAFT Project as a whole show that disadvantaged first-grade Negro children can make substantial progress in learning how to read. The pupils as a group had done quite poorly on the reading readiness tests. Their achievement was well ahead of expectations based on their pretest scores.
2. Disadvantaged urban Negro children can learn to read by the same methods that work with middle-class white children. They begin with extremely poor auditory perception skills, limited voca-

bularies, and other readiness handicaps, but they can respond to superior teaching with good learning. When books and stories are within their comprehension, they respond well to many of the same books that are favorites with middle-class children. Their new integrated favorites with multi-ethnic characters are probably gaining popularity among middle-class children also.

3. The Basal Reader Method, employed as in the CRAFT Project, held a slight lead among the four methods at the first-grade measuring point. It achieved slightly but significantly highest results in meaningful silent reading comprehension. It was significantly highest also on the San Diego Inventory of Pupil Attitude. It was relatively less impaired in the split-session schools than the Audio-Visual Method, which was the only Language-Experience Method with split-session classes.
4. The Phonovisual Method, although liked by its teachers, did not demonstrate any superiority. It was inferior to the Basal Reader Method in paragraph meaning, and its slightly higher scores on word recognition tests were not statistically significant. It was the lowest of the four methods on the San Diego Inventory of Reading Attitudes.

   Chall, in a detailed survey of research on first-grade reading instruction, concluded that systematics phonics instruction has a delayed effect with disadvantaged children; that it does not do well in the first grade, but shows to advantage by the end of the second grade.* It is possible, therefore, that the Phonovisual method will demonstrate accelerated gains in the next progress report.
5. The Language-Experience Approach with Audio-Visual supplementation obtained significantly higher scores on several tests than did

---

*Chall, Jeanne, Learning to Read: The Great Debate, Vols. I and II. Final Report of The City College-Carnegie Reading Study (1962-65). New York: The City College of The City University of New York.

the Language-Experience Method without audio-visual supplementation. In grade-level scores the A-V Method matched the means of the Skills-Centered Approach on most of the reading tests and surpassed it on one test. The L.E.-A.V. Method requires expensive equipment and intensive training of teachers. It also did poorly in split-session classes. But present results fully justify continued explorations of the ways in which the use of audio-visual procedures can enrich reading instruction. Considering how long it took to get the A-V Method operative, its results are very encouraging.

6. The slight but statistically significant lead of the Skills-Centered Approach over the Language-Experience Approach is due to the L.E. Method's relatively poor showing; the L.E.-A.V. Method matched the Skills-Centered results. The differences, even when statistically significant, were not large and might disappear or be reversed during the second grade.
7. In the schools in which the CRAFT classes were on split-session schedules, achievement in both approaches was considerably lower than in the full-session schools. The implication is clear that split-session schedules for first-grade classes should be abolished as soon as possible.
8. Adequate control of instructional time is essential if controlled research on methods of instruction is to have any validity. Despite strenuous effort in the training program, there were both wide differences in instructional time within each method, and significant differences between the approaches. Furthermore, the amount of time spent in direct reading activities was one of the few variables positively correlated with outcome measures. The Teacher Log (which is now available in a version that can be automatically scored and punched into data cards by an I.B.M. 1230 Visual Scanner) demonstrated its usefulness as a research tool.
9. When a new way of teaching reading is to be tried, an intensive, continuing in-service training program is necessary. With a workshop that met once a week during the early months and every two weeks afterward, and with each group of four teachers receiv-

ing a half-day per week of reading consultant help, the CRAFT teachers learned to teach according to the methods assigned to them. The four methods were clearly distinct according to the Logs, the OScAR, and the San Diego Inventory of Approaches to the Teaching of Reading.

10. After the posttest results had been corrected for initial differences in readiness, the posttest means in some CRAFT classes surpassed the national norms, while the means in other classes were very low. The implied need for further study of what makes some teachers more effective than others is clear, and will be discussed further in a subsequent section.

Differences in Teacher Effectiveness

The large and significant differences in the result-getting ability of individual teachers cut severely across the relationship between teaching method and results. The analysis of variance tables all showed very large residuals, attributable in large measure to differences among the teachers within each of the methods. The range in corrected means within each teaching method was far greater than any difference between methods.

The development and use of OScAR-R was based on the hope that it would tap dimensions of teacher behavior that are significantly associated with good or poor learning on the part of the children. That it failed to show significant correlations with the posttests results was a real disappointment.

Teachers in split-session schools did not achieve as good results as teachers in full-session schools. The curtailment of time and the need to turn the classroom over to another teacher each day seemed to impair the effectiveness of Language-Experience Audio-Visual teachers more than that of Skills-Centered teachers.

Another significant time factor was the amount of time per day spent directly in reading activities. The positive correlations between reading time and posttest results were substantial, and indicated that regardless of method, teachers whose pupils spent more time in reading activities tended to do better than those whose pupils spent less time in reading activities. The amount of time spent in supportive or related activities, on the other hand, did not correlate significantly with posttest results.

Aside from these clues, the present study does not provide evidence to explain why one teacher can get superb results with a particular teaching method of instruction gets poor results.

This problem looms as one which must be solved if teacher training, both pre-service and in-service, is to produce any significant improvement in the preparation of those who are to teach beginning readers.

Possible Generalization of the Results

One of the original objectives of the planners of the CRAFT Project was to conduct the study in such a way as to allow maximum generalization from the results of the study to large-scale applications in schools that have substantial numbers of disadvantaged children. Some of the steps taken to implement this policy were as follows:

1. The schools were public New York City elementary schools, varying greatly in age and physical facilities, located in depressed Negro ghetto areas.
2. The teachers were regular New York City elementary teachers. The only criteria used in selecting them were that they were willing and likely to remain in the school to the end of the year.
3. The children were chosen at random from among the first-grade entrants. In the school with the least disadvantage, two "high" classes were removed and the CRAFT children were chosen from among the rest. Both children with and without kindergarten experience were included.
4. The teaching methods were chosen to represent opposed theoretical points of view that are widely held.
5. Classes were kept at the average size of the non-project first-grade classes in their schools. The average class register was approximately 33 pupils, and some teachers had between 35 and 40.

6. The classes were supplied with the materials normally required for good teaching with the method. With the possible exception of some of the audio-visual equipment, the costs for materials were well within the financial capability of an adequately supported school system.
7. The amount of training and supervision provided was considerably more than is typical. It is becoming increasingly evident that similar training and supervision are essential if teachers are to learn how to work effectively with disadvantaged children.

In the opinion of the project staff, the seven points detailed above justify the expectation that the final results will be generalizable to the education of disadvantaged urban Negro children, both in New York City and elsewhere.

Chapter VII

SUMMARY AND CONCLUSIONS

This report is a progress report describing the first year of the three-year CRAFT Project, a comparison of methods of teaching reading to young disadvantaged Negro children. The project is well into the second grade, and will continue through the third grade. The first-grade results are regarded as tentative and inconclusive in regard to the relative merits of the instructional procedures.

The CRAFT Project is one of the coordinated research projects on first-grade reading supported by the U.S. Office of Education. The project attempts to compare the relative effectiveness of two major approaches to the teaching of reading to disadvantaged urban children: (1) the skills-centered approach, and (2) the language-experience approach. Each of these was tried with two variations, making four treatment methods in all. These four treatment methods were as follows: (a) a skills-centered method using basal readers, with close adherence to the instructions contained in the teacher's manuals; (b) a skills-centered method utilizing basal readers, but substituting the Phonovisual method of teaching work attack skills for the work-attack lessons accompanying the basal reader; (c) a language-experience method, in which the beginning reading materials were developed from the oral language of the children; and (d) a language-experience method with heavy supplementation of audio-visual procedures.

The basic conflict between the two major approaches is between two quite different philosophies of education. The skills-centered approach emphasizes the need for order and structure for disadvantaged children. In this approach skills are introduced in specific pre-ordered sequence, and the vocabulary used is carefully controlled. In the language-experience approach emphasis is placed upon ego-building procedures in the classroom and on language and experience enrichment. The child's oral production, written down, supplies the beginning reading materials, and reading skills are developed as part of the language development of the child.

Procedures

Population

Twelve elementary schools were selected with the assistance of the staff of the New York City Board of Education on the basis of a very high percentage of Negro children, a minimum of six first grade classes, and evidence of cultural deprivation and marked retardation in previous surveys of reading ability. Of 1,378 children in 48 classes who completed the pretests, 1,146 remained to the conclusion of the first-grade testing. There was random assignment of the four methods to schools, two methods to each school, random assignment of teachers to the two methods within a school, and finally, random assignment of pupils within each school to the two methods. Care was taken to identify children with and without kindergarten experience and to balance their assignment to the methods.

Teachers

The teachers were recruited as volunteers by their school principals, with the understanding that they would accept any of the four variables that would be assigned to them by lot. They varied greatly in age and experience. A small stipend was provided for the extra work and after-school time involved. Training workshops for the four methods started in June of the preceding year and continued for twenty-one sessions during the year. In addition to the workshops, the teachers were visited periodically by the assistant director of the project and by the six consultants. Guidance and help were given in developing the unique features of each of the four methods.

To check on the use of time, all teachers kept a log for five days each month, indicating the number of minutes spent on Reading and the other Language Arts. In addition, a special observational schedule called OScAR-R, constructed by Dr. Donald M. Medley, was used as a basis for objective observations of teacher-pupil interaction and of materials used during representative lessons. Each teacher was visited eight times, twice by each of four research assistants.

Tests

The following pre-tests were administered: The Murphy-Durrell Diagnostic Reading Readiness Test, the Metropolitan Readiness Test (partial), Thurstone Pattern Copying and Identical Forms tests. For final testing the Stanford Achievement Test, Primary I, was given to all as a measure of silent reading abilities. The Gilmore Oral Reading Test, three word lists, and two writing tests were given to a random sample of 192 children, 48 for each of the four methods.

Results

The results of the first year of the CRAFT Project have been presented in detail in Chapter V, and their implications have been discussed in Chapter VI. At this point they will be briefly summarized, as they bear on the five major questions and three minor questions that were listed as "specific" objectives on page 6.

The major questions were Questions One through Five.

Question 1. Does a significant difference in reading achievement exist between groups taught by Skills-Centered and Language Experience Approaches?

After outcome measures were adjusted to eliminate differences in readiness, there were small but statistically significant differences in favor of the Skills-Centered Approach when all twelve classes were included. When the analysis was restricted to the nine schools with full-session schedules, the Skills-Centered Approach was still significantly higher than the Language-Experience Approach in silent reading and spelling. The Audio-Visual Method, however, equaled the results of the Skills-Centered Approach; the regular Language-Experience Method accounted for the difference between the two main approaches. Most of the obtained differences amounted to only one-tenth of a year in grade score, and therefore were of little practical consequence even when statistically significant.

Question 2. Do pupil gains in reading under Skills-Centered teaching differ when the Basal Reader Method is used as compared to the Phonovisual-Basal Reader combination?

The Basal Reader Method surpassed the Phonovisual Method in silent reading comprehension, and this was the only statistically significant difference between these two methods in reading skills. The Basal Reader Method was also significantly higher than the Phonovisual Method on the San Diego Inventory of Pupil Attitude, showing more favorable attitudes toward reading.

Question 3. Do gains by pupils given Language-Experience teaching depend on the amount of audio-visual enrichment?

When the comparison was restricted to the nine schools with full-session schedules, the Audio-Visual Method had higher means than the regular Language-Experience Method on all seven of the measures for which adjusted means were available. Four of the differences were significant; the others were within the range of chance fluctuation. The two methods were not significantly different on the inventory which measured attitude toward reading.

The Language-Experience-Audio-Visual teachers were somewhat delayed in receiving their equipment and in learning how to use it, and spent less time both in total language arts instruction and in time spent in reading activities than did the other Language-Experience teachers. These two conditions enhance the importance of the achievement of the Audio-Visual Method.

Question 4. Do any of these methods of teaching tend to produce greater pupil gains in some skill areas than in others?

None of the methods outstripped the other three methods in all respects. The Basal Reader Method was first by a significant margin in silent reading comprehension and in attitude toward reading. The Phonovisual Method had small and non-significant leads on some tests of word recognition. The Audio-Visual Method was first on measures of spelling and word study skills, but not significantly. The regular Language-Experience Method was lowest on all seven adjusted measures. On all measures, even the statistically significant advantages were small.

Question 5. Does the amount of success a teacher has with a method depend on how faithfully she uses it?

Degree of conformity to one of the four methods was measurable in three ways. The *Teacher Log*, the *OScAR-R*, and the *San Diego Teacher Inventory* all provided scores related to the specific teaching methods. When these various scores were correlated with the adjusted class means, the coefficients were generally not significantly greater than zero. There is no evidence in this study, therefore, that conformity to the details of a method is necessarily productive of superior results with it.

There were also three minor questions listed among the objectives.

Question 6. What measure, or combination of measures, obtained at the beginning of the first grade is the best predictor of achievement in reading for this population?

The CRAFT children showed clearly the effects of disadvantaged upbringing in their performance on reading readiness tests. Their mean scores ranged from the percentile to the 44th, on various reading readiness tests; their median was at the 23rd percentile. Their poorest showing was on *Murphy-Durrell* Phonemes (1st percentile) and *Metropolitan* Word Meaning (14th percentile).

Unfortunate errors in test administration had invalidated the scores of several whole classes on four of the five *Murphy-Durrell* scores and on the *Thurstone* Identical Forms test. Among the four tests on which usable scores were obtained from all classes, there was little basis for choosing. These were *Murphy-Durrell* Learning Rate, *Metropolitan* Word Meaning and Listening, and *Thurstone* Pattern Copying. These four tests all had correlations with posttest scores that were significant but low. Their very low intercorrelations indicated that the four tests were measuring different aspects of readiness, and made possible the substantial multiple correlation with the posttests.

Because of the necessary elimination of some of the readiness measures, the data from this study do not provide a satisfactory answer to Question 6.

Question 7. What characteristics of books determine pupils' reactions to them?

The CRAFT children liked both children's classics and comparatively new books that have become established favorites among middle-class children. They also tended to be attracted to books in which people with dark complexions were pictured, but multi-ethnic illustrations did not make a book popular if the content was dull or incomprehensible. The teacher's manner of presenting the story was of considerable importance.

Question 8. What is the relationship of age, experience, training, and other teacher characteristics to success in teaching reading by each method?

Very marked differences in teacher effectiveness in all four teaching methods were revealed in the very wide range of adjusted class means for each method, and in the very large residuals (attributable largely to class differences within methods) in all of the analysis of variance tables.

In addition to the information obtained about teacher age, education, experience, and attendance, a large variety of scores were obtained on subscales of the Teacher Log, the OScAR-R, and the San Diego Teacher Inventory. Correlations of all of these scores with adjusted class means on the posttests failed to turn up any r's of usable size. The one fact positively established is that the teachers who spent more time in direct reading activities tended to have better pupil achievement as measured by the posttests than teachers who spent less time in reading activities and more on other Language Arts activities.

Two other findings, not included in the original objectives, are worth noting here.

The first is the fact that in all of the Methods tried, most of the children made a substantial start in learning to read. Considering their low performance on the pretests, their achievement on the posttests seems to the project staff to have been quite satisfactory. This may very well have been due more to the intensive teacher training program than to the specific teaching methods.

The second finding was an outcome of the fact that three of the CRAFT schools had to go on split-session schedule. The split-session classes were significantly lower than the full-session classes on most tests for all methods. The Audio-Visual Method was the one most adversely affected in the split-session classes. The desirability of providing disadvantaged children with a full day in the first grade has been clearly demonstrated.

The relative merits of the two approaches and four teaching methods employed in this study have not yet been established. The CRAFT Project will continue until the original first grades will have finished the third grade. Further light concerning the guiding questions will be sought as the study progresses. The final report is planned for January, 1968.

The City University of New York
Division of Teacher Education
OFFICE OF RESEARCH AND EVALUATION

CRAFT PROJECT

December 30, 1964

MEMO TO: Teachers and Consultants
(Attention: Principals and Assistant Superintendents)

FROM: Blanche L. Serwer

Here is the new form of the daily log, which incorporates many of your own suggestions.

It is designed to record total time spent on discussion, listening, reading and writing in Social Studies and Science, as well as in Language Arts.

The total time given to this combination should be the same in all variables: three hours a day in our five-hour schools and two and one-half hours a day in our four-hour schools.

Basal Reader Teachers (with and without Phono-Visual)

For the teachers using a basal reader method the subject matter breakdown remains:

	5 Hours	4 Hours
Language Arts - Total	120 min.	100 min.
Reading (3/4)	90 "	75 "
Other Language Arts (1/4)	30 "	25 "
Social Studies	30 "	25 "
Science and Health	30 "	25 "
Total	180 min.	150 min.

The time spent may well vary from day to day, but should average close to these figures for the week.

Language Experience Teachers (with and without Audio-Visual Supplementation)

The teachers in the language experience variables should devote the same total time to the combination of Language Arts, Social Studies, and Science. This means an average of three hours a day for the total complex in our five-hour schools, two and one-half hours in our four-hour schools.

Integration and mutual reinforcement of the Language Arts (listening, speaking, reading and writing) is a basic concept of the language experience approach. Therefore, the balance of time between Reading and the other Language Arts can be flexible.

Concerning Audio-Visual Experiences in all Variables

Most audio-visual experiences are planned to be part of the instructional program of Language Arts, Social Studies or Science, and should be included in the time allotment unless specifically outside of the experimental variable, e.g., arithmetic.

Field Trips

When field trips are made, time spent in preparation before the trip and in discussion and follow-up activities are counted in the relevant curriculum area, but time spent outside the classroom is not counted.

Change in Number of Logs to be Submitted

As indicated in the postscript to my letter to you dated December 23, 1964, the number of logs will be reduced to five a month. Let us make it a record of the third week of each month. In January, we hope to receive daily logs for January 18th to 22nd. Will the one person appointed in each school please continue assuming responsibility for mailing these to our office so that we may receive them before the end of each month.

Next Session of In-Service Course: January 18th at Hunter College H.S. in the assigned rooms at four o'clock.

The consultants and I look forward to meeting with you again. We hope that because of this type of written communication about technical matters, we will find it possible to spend the vast bulk of the session on discussion of the individual variables and instructional problems which inevitably arise.

Since January 18th will be the first day of log-keeping under the new system, you may have some questions and comments you wish to make. These comments should have pertinence to all teachers on the project. For questions which concern your local situation only, please consult privately either your district reading consultant or myself.

Blanche L. Serwer, Coordinator

BLS:bmt

Enclosed: 20 copies of the new Daily Log Form, a quantity sufficient for four months.

The City University of New York
Division of Teacher Education

OFFICE OF RESEARCH AND EVALUATION

CRAFT Project

New Daily Log Form

Teacher____________________ Class______ School____________________ Date__________

Please jot down the starting time and stopping time for each activity you employ during the day, at the completion of the activity. If there is more than one period for a particular heading, put down the times for each period.

Reading Activities	Times	Summary in Minutes
Basal Reader Activity		
Experience Chart		
Sight Word Drill		
Phonic Activity		
Other Reading Activities (Specify):		
Supportive Activities		
Story telling or reading (by teacher)		
Discussion		
Writing		
Audio-Visual activity		
A-V with intermittent discussion		
Dramatization		
Art work with reading		
Other Language Arts (Specify)		

For Basal Reader and Phonovisual classes which have separate periods for social studies and science.

Social Studies

Science

How First-Grade Teachers Spend Their Time Teaching Language Arts to Disadvantaged Urban Children

Blanche L. Serwer and Albert J. Harris
Division of Teacher Education
The City University of New York

Presented to
American Educational Research Association, Chicago, February 19, 1966

Problem and Objectives

The difficulty encountered by disadvantaged children in learning to read has become one of the nation's most provocative research problems. There emerges a clear necessity to discover effective ways of teaching the culturally different child, introducing the Language Arts in an orderly, sequential fashion. The most appropriate sequences and time allotments are goals for future research.

A preliminary problem arises as to what is happening in classes of disadvantaged children today? What are teachers doing when they say they are teaching the Language Arts? How are they dividing the time allotted to this important area of the curriculum at the present time? These questions arose as by-products of a study in first-grade reading. Thus a unique opportunity was presented to investigate the allocation of time to the various aspects of the language arts, including reading, by a large group of teachers of first-grade disadvantaged children living in ghetto areas of New York City.

Procedures

Methods in the Study

At this point a short description of the reading study called the CRAFT Project seems necessary. Figure 1 shows the teaching methods that were used.

This report is based on data collected in Project No. 2677 of the Cooperative Research Program of the Office of Education, U.S. Department of Health, Education and Welfare. Additional support was given to the project by the Board of Education of the City of New York and the Division of Teacher Education of The City University whose Office of Research and Evaluation is conducting the research.

Skills-Centered Approach 24 Classes	
I Basal Reader Method 12 Classes	II Basal Reader Method with Phonovisual Word Recognition 12 Classes

Language-Experience Approach 24 Classes	
Language-Experience Method 12 Classes	Language-Experience Method with Audio-Visual Supplementation 12 Classes

Figure 1. Two Major Approaches Subdivided into Four Experimental Methods

The Craft Project (Comparing Reading Approaches to First-Grade Teaching with Educationally Disadvantaged Children) is one of the coordinated research projects in first-grade reading currently receiving support from the Cooperative Research Program. The central comparison is between the Skills-Centered Approach and the Language-Experience Approach. The Skills-Centered Approach emphasizes the need for order, structure, and built-in repetition. Skills are introduced in specific sequence, the vocabulary is carefully controlled, and the teacher is provided with detailed lesson plans. The Language-Experience Approach emphasizes the need for self-expression through the use of the child's oral language as a basis for beginning reading materials. His experiencesprovide a basis for concept-building, language enrichment, and vocabulary development. Out of the discussion of these experiences, chart stories are developed and used for reading and writing, for skills instruction, and for drill. The transition to book reading is gradual and individualized.

Each of these two main approaches is further divided into two teaching methods. The Skills-Centered Approach is sub-divided into Method I, Basal Reader Method, with close adherence to the instructions contained in the teachers' manuals; and Method II, the Phonovisual Method of teaching word recognition used with basal readers, in place of the word recognition lessons contained in the manuals. The Language-Experience Approach was subdivided into Method III, Language-Experience with customary use of audio-visual technology, and Method IV, Language-Experience with heavy supplementation of audio-visual methodology.

Population

Since there were twelve classes in each of the four treatments, 48 first-grade teachers participated, together with their approximately 1600 pupils, predominantly low socio-economic Negro children, in twelve schools located in three boroughs of New York City. These schools with one exception had been designated as "special service" schools to receive extra educational and psychological services because of the high incidence of cultural deprivation and instructional problems.

Method of Collecting Data

It was important that the time spent in teaching be equalized among the four experimental methods in order to eliminate a potential source of uncontrolled variance. A further problem that had to be solved was that nine of the twelve schools were on full five-hour sessions and three were on part-time four-hour sessions. A Daily Teacher Log was therefore designed to record the total time spent on Reading and on supportive Language Arts activities. The recommended total time allotted to this combination was established as three hours a day for the nine five-hour schools and two and one-half hours a day in the three four-hour schools.

For Skills-Centered teachers (Basal Reader and Phonovisual Methods) the following use of time was designated:

	5 Hours	4 Hours
Language Arts - Total	120 min.	100 min.
Reading	(90 min.)	(75 min.)
Other Language Arts	(30 min.)	(25 min.)
Social Studies	30 min.	25 min.
Science and Health	30 min.	25 min.
Total	180 min.	150 min.

For the teachers in the Language-Experience methods the proper allocation of time was more difficult, since many of the Language Arts activities were developed out of experiences which could also be classified as Social Studies or Science and Health. The Language-Experience teachers were therefore asked to devote the same total (180 minutes for five-hour schools and 150 minutes for four-hour schools) to the combination of Language Arts, Social Studies, and Science. Integration and mutual reinforcement of the Language Arts (listening, speaking, reading and writing) was a basic concept of the Language-Experience approach; therefore, the balance of time between Reading and the other Language Arts was flexible.

Number of Logs

Teacher Logs were recorded every school day in November and December. The number of logs was then reduced to five consecutive days a month for two reasons: (1) the teachers expressed some resentment against recording every day; (2) the research staff judged that five a month would be adequate for the necessary statistical analysis concerning equalization of time. The teachers continued to submit logs through the month of May.

Format of the Log

The original log form was tried out in one school and then mimeographed, incorporating the teachers' suggestions. Checking, totaling and doing statistical computations proved to be a time-consuming activity, absorbing a considerable amount of research assistant time. It was therefore revised as an optical scanning record form for the I.B.M. 1230 system, for use in the second year's replication and continuation studies. Both log forms are appended.

As can be seen from these forms, the log was designed to elicit from the teacher an accurate statement concerning the time spent in all aspects of the Language Arts, divided into the two major categories of Reading Activities and Supportive activities. Social Studies and Science, which were integrated into the Language Arts in the two methods of the Language-Experience Approach, were also included.

Accuracy of the Logs

There is, of course, no way to verify the accuracy of the times entered by the teachers. Classroom appraisals by supervisors and reports of objective observers concurred in confirming the seriousness with which the logs were regarded. In going over the completed log forms, however, the research staff noted some use of the two "other" columns for activities covered in the specific categories. These errors were not numerous, especially when compared to the total time spent in the 48 classes.

Results and Discussion

Table 1 presents the average daily instructional time in minutes for the two major approaches and the four teaching methods.

Table 1

Average Daily Instructional Time for
Two Approaches and Four Teaching Methods

Variable	Time in Minutes per day
Skills-Centered Approach	171.5
I. Basal Reader Method	172.1
II. Phonovisual Method	170.8
Language-Experience Approach	175.9
III. Language-Experience Method	194.0
IV. L-E Audio-Visual Method	157.8

It is apparent that the difference between the instructional time devoted to the two major approaches (171.5 vs 175.9 minutes) is negligible, and that both are reasonably close to the goal of 180 minutes.

The disparity between the Language Experience methods with and without audio-visual supplementation may be in part an artifact of the method of reporting, since it seems probable that time spent with A-V equipment was omitted from the log by some teachers, although preparation and ensuing discussions were included. Another possible explanation is the slowness with which the Audio-Visual Method became implemented.

The teachers encountered difficulty in becoming accustomed to the CRAFT time allotment, which was considerably greater than the time suggested for the Language Arts in the most recent Board of Education Curriculum Bulletin No. 1, i.e., 90 to 120 minutes per day for the Language Arts, of which only 30 to 45 minutes are designated for Reading.

Figure 2 shows the progress month by month of teachers of the four methods in approximating 180 minutes per day. The Audio-Visual and Basal Reader teachers started low and reached the desired level in March. The Phonovisual teachers showed least change. The Language-Experience teachers started at the desired level and then went up, down, and up again.

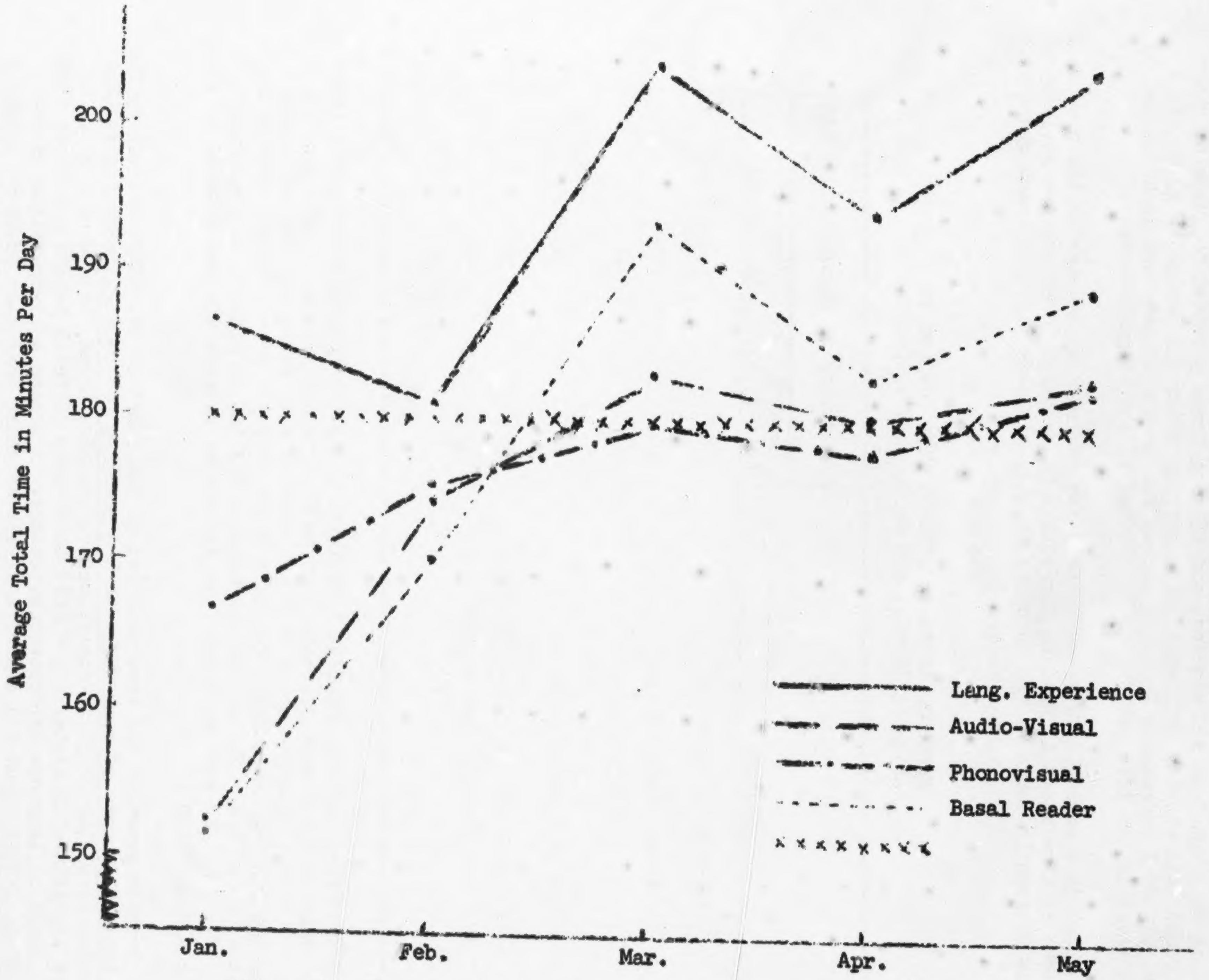

Figure 2. Changes in Total Language Arts Time Per Day for Four Teaching Methods, by Months, in Full-Session Schools

Each teacher was encouraged at successive meetings to aim as closely as possible at a total of 180 minutes, and the log forms provided feedback by which they could tell whether they were going over or under the desired figure. In a sense, Figure 1 represents learning curves for groups of teachers in adjusting to an increase in the time per day to be devoted to the Language Arts.

There is a marked difference between the two main approaches in the proportions of time spent in Reading Activities as compared to Supportive Activities. As can be seen in Table 2, the teachers in the Skills-Centered Approach spent 55.5 per cent of their time in Reading Activities while the Language-Experience teachers spent only 39.5 per cent of their time in Reading Activities. Conversely the Skills-Centered teachers spent 44.5 per cent of time in Supportive Activities, while the Language-Experience teachers spent 60.5 per cent of their time in Supportive Activities. The difference between the two approaches is significant ($p < .05$). Within each approach the difference between the two methods is small and not significant.

Table 2

Percents of Instructional Time Devoted to Reading Activities and Supportive Activities

Variable	Percentage of Instructional Time	
	Reading Activities	Supportive Activities
Skills-Centered Approach	55.5	44.5
I. Basal Reader Method	56	44
II. Phonovisual Method	55	45
Language-Experience Approach	39.5	60.5
III. Language-Experience Method	42	58
IV. L-E Audio-Visual Method	37	63

Teacher practice had been measured at the start of the CRAFT Project by the San Diego Inventory of Approaches to the Teaching of Reading. According to that questionnaire, the CRAFT teachers, before training began, tended as a group to score significantly higher ($p < .01$) on a scale of Basal Reader practices than on a scale of Language-Experience practices. A second administration of the San Diego Inventory at the end of the year revealed that each group of teachers had changed significantly in the direction of the method to which they had been assigned.

Table 3 presents the percentage of time per day spent on each of the five itemized kinds of reading activities and on each of the ten kinds of supportive activities, by method.

Table 3

Percentages of Time Spent on Specific Reading and Supportive Activities in Four Teaching Methods

	Skills-Centered		Language-Experience		
ACTIVITIES	I Basal Reader	II Phono-Visual	III Language Experience	IV Lang.-Exp. Audio-Vis.	P
Reading Activities	56%	55%	42%	37%	
Basal Reader	28.8	25.3	3.3	2.0	< .01
Experience Chart	6.9	4.7	12.6	10.9	< .01
Sight Word Practice	8.2	5.7	7.7	6.9	NS
Phonics	8.2	17.2	7.7	7.6	< .01
Other Reading Activitie	3.9	2.1	10.7	9.6	< .01
Supportive Activities	44%	45%	58%	63%	
Story-Telling	8.7	10.0	9.4	7.1	NS
Discussion	5.8	8.0	10.6	10.2	NS
Writing	9.2	9.6	12.3	12.1	NS
Audio-Visual	2.4	2.1	1.9	9.2	< .01
Audio-Vis with Discussion	1.0	1.2	1.1	5.9	< .01
Dramatization	2.2	2.7	3.6	2.7	NS
Art Word with Reading	4.8	3.4	9.4	8.1	NS
Other Language Arts	2.6	1.2	4.2	2.6	NS
Social Studies	3.9	3.9	2.7	2.8	NS
Science	3.4	2.9	2.8	2.3	NS
Total	100%	100%	100%	100%	

The distinctive features of the four methods show up clearly. Teachers in both Skills-Centered methods spent 25 per cent or more of their total Language Arts time in the use of basal readers. The Phonovisual teachers spent 17 per cent of their time on phonics; the other three groups averaged eight per cent on phonics. The two Language-Experience groups devoted 10 to 12 per cent to each of the following: experience charts, discussion, and writing. The Audio-Visual teacher averaged about 15 per cent of their time on the use of audio-visual procedures, while the other Language-Experience teachers and the two groups of Skills-Centered teachers only spent one-fifth as much time in this area. The small amount of time listed for Social Studies and Science is probably explained by the tendency of teachers to list these under "Experience Charts".

Teachers in all four methods were encouraged to tell and read stories to the children and to stimulate discussion and writing. The results show substantial allocations of time to these activities in all methods. Sight word practice was slightly less used by the Phonovisual teachers, but the differences in this category were not significant. The use of art as a supportive activity was used more than twice as much by the Language-Experience teachers than by the Skills-Centered teachers.

An analysis of variance was carried out for each of the 15 activities listed in the Log. Six of these differences were statistically significant, all in the direction consistent with a priori assumptions about the methods. These were: basal reader, experience charts, phonics, other reading activities, audio-visual activity, and audio-visual with discussion.

Eight of the activities received approximately the same amount of time in the four methods. These were: sight word practice, story telling, discussion, writing, other language arts, Social Studies and Science. Discussion and writing showed non-significant tendencies in the direction of more emphasis in the Language -Experience methods. For art work with reading there is a significant difference between approaches, but not between the methods in the same approach.

Summary and Conclusions

Data concerning the allocation of time in the teaching of Language Arts to first-grade disadvantaged urban children were collected during the investigation of the relative effectiveness of four methods of teaching reading in three racially segregated areas of New York City. Two of the methods were Skills-Centered, i.e., centered in Basal Readers with and without the Phonovisual method of phonics instruction. Two of the methods were based on Language-Experience, with and without audio-visual supplementation.

The findings may be summarized as follows:

1. The 48 teachers, required to indicate the number of minutes spent on teaching Reading and the Language Arts, kept logs for two full months and then for 5 days of each subsequent month to May, 1965. This study reported the percentage of time they spent each day on five reading activities and ten supportive language activities in the four Methods in the CRAFT study.

2. Since the instructional time requirements of the project exceeded the city requirements, several months elapsed before teachers achieved the desired level of time allotment to Reading and the Language Arts.

3. By means of an in-service training program, the teachers were guided to increase their allocation of time to this general area as well as to emphasize the specific kinds of activities appropriate to the method of instruction to which they had been assigned.

4. Each group of teachers was found to emphasize the specific activities required by their assigned method of teaching. Statistically significant differences in time spent, some of them very large, were found for six of the fifteen kinds of instructional procedures included in the Log form. Eight kinds of activities did not show significant differences among the teaching methods. One activity showed a difference between the Skills-Centered and Language-Experience Approaches but not between methods.

The City University of New York
Division of Teacher Education

OFFICE OF RESEARCH AND EVALUATION

CRAFT Project

New Daily Log Form

Teacher____________________ Class______ School____________________ Date__________

Please jot down the starting time and stopping time for each activity you employ during the day, at the completion of the activity. If there is more than one period for a particular heading, put down the times for each period.

Reading Activities	Times	Summary in Minutes
Basal Reader Activity		
Experience Chart		
Sight Word Drill		
Phonic Activity		
Other Reading Activities (Specify):		
Supportive Activities		
Story telling or reading (by teacher)		
Discussion		
Writing		
Audio-Visual activity		
A-V with intermittent discussion		
Dramatization		
Art work with reading		
Other Language Arts (Specify)		

For Basal Reader and Phonovisual classes which have separate periods for social studies and science.

Social Studies
____

Science
____

INSTRUCTIONS FOR RECORDING BEHAVIOR WITH OScAR R*

Donald M. Medley and Lou Hicks Smith

Background

OScAR R (Observation Schedule and Record - Reading) was developed by this office in order to assist in the implementation of the First-Grade Reading Project (CRAFT). It has a two-fold purpose: (1) it should provide some record of the degree to which teachers in the experiment implement the variables assigned to them; (2) it should yield information about similarities and differences in the behaviors of teachers assigned the same method. If such behaviors affect the rate at which pupils learn to read, this information can be used in the analysis of the data to increase the precision of the methods comparisons.

The schedule has two sections, one printed on the front and the other on the back of a five-by-eight card. One side is called the "Static" section (OScAR Rs) and the other is called the "Dynamic" section (OScAR Rd). The Static section is designed to yield a description of the range and variety of activities and materials observed in the classroom, analogous to a still photograph. The Dynamic section, which focuses on the verbal behavior only, is designed to yield a running description of the pattern of teacher statements and of the verbal interchanges between teacher and pupils. The categories into which behaviors are coded on both sides are designed to involve only simple, non-evaluative discriminations which can be made by relatively unsophisticated observers after a brief period of training.

General Procedure

The basic unit of observation is a ten-minute period. During the first three minutes, behaviors are coded on the Static side. During the second seven minutes, behaviors are coded on the Dynamic side.

Visits are scheduled ahead of time, and teachers are requested to arrange their school days so that a language arts lesson will be scheduled while the observer is in the classroom.

At the appointed time the observer enters the room as unobtrusively as possible and takes a seat near the rear. He first fills in the sections at the right of the Static side of the card, beginning by indicating the date and the time in the spaces provided. (See attached copy of OScAR.) Next he checks in the box in the upper right corner any audio-visual materials being used, in the column headed "S" and the organization of the class into groups in the box immediately below. He then starts his stop watch, and for three minutes records the activities and materials he observes in the main body of the Static section. At the end of three minutes, he stops his watch, and indicates the audio-visual equipment then being used, and the organization of the class into groups. This time he makes his marks in the column headed "D". Then he turns the card over, starts his watch again, and for seven minutes tallies verbal behavior on the Dynamic side of the card. At the end of six minutes, he stops his watch and makes any appropriate notations in the box for "Remarks" (on the Static side). If observation is to continue, he begins all over with a new card.

---

* This is a prepublication draft not to be cited or reproduced without the permission of the authors.

This 10-minute "period" of observation (which is recorded on one card) constitutes the primary unit of observation, 9 minutes of which are recorded. Observers in the CRAFT Project are instructed to obtain three consecutive periods of observation per visit for use in the analysis of the experiment. They have also been asked, when possible, to obtain one extra period of observation during each visit for use in item analysis, preceding the analysis of the results of the experiment.

Although the instrument is designed primarily for use during lessons whose goal is the teaching of reading, observers are instructed to record any teacher behavior that occurs during a visit, with one exception. In case the teacher finishes a lesson while the stop watch is running, and begins a rest or snack period, the observer will continue to code whatever behaviors he observes until it is time to stop the watch. But he will not start the watch again until the end of the rest or snack period.

Detailed Procedure - Static Side

The eight small boxes at the upper right are used for identifying code numbers for this Office's First-Grade Reading Project.. The following information is coded: Observer, Visit Number, Time Period Within Visit, Visit Number Given by Observer, Variable, Consultant, School within District, Teacher within Variable. This section is completed before the observer enters the classroom.

Immediately below these boxes is a section in which use of the following audio-visual equipment is to be checked: Motion Picture Projector, Slide/Strip Projector, Tape Recorder, Phonograph, Overhead Projector, Camera. These items are checked only if such equipment is in use at the time when the block is checked. By choosing the "S" or the "D" column, the observer indicates whether the equipment was in use at the beginning of the Static or the Dynamic phase of the period.

Below the audio-visual block there appears a section which is used for recording the group structure of the classroom. A different row is used by the observer to record each discernable functional group which appears in the classroom at the beginning of each of the two phases (Dynamic and Static). The observer counts the number of children in each group he sees, and writes this number in one of the cells in Column S or D as the case may be. If only one group appears in the classroom (the entire class), the observer records the total number in the entire classroom in the top box. A check is made in the adjoining box (column headed "T") to indicate which group the teacher is with.

The blank box in the lower right-hand side, labelled "RMKS" is used to record brief summary comments about the activities occurring during the entire observation period, particularly anything unusual which might occur.

The main body of the Static side, which appears to the left of these small sections, consists of a two-way classification: what activities occur during the three-minute period and what materials are used in these activities?

Figures 1 and 2 are included to clarify the process by which the observer codes the behaviors and locates the cells in which they are to be recorded. The process is sequential in the sense that in order to code a behavior the observer must make a series of separate discriminations. The 20 activities are listed vertically, and the 18 categories of materials are arranged horizontally in a pattern designed to facilitate recording.

Materials The organization of materials can perhaps best be understood by a close examination of Figure 1.

If the activity observed is such that no materials are used (if, for example, the teacher is telling a story) the category "No Materials" is used.

If materials are involved, the first discrimination to be made occurs at Level 1 of Figure 1: between Books, Display Materials, and Hand-held Materials.

Under the general category Books there are two major subdivisions: Published Books and Homemade Books.

Published Books are divided into three types: Basal Readers, Workbooks, and Supplementary Books. Basal Readers include pre-primers, primers, etc. in whatever series the teacher uses. Workbooks are designed to be written in. Supplementary Books include any published books, such as story books, which are not used in the basal reader series being used. Readers from other series fall into this category.

Homemade Books include the pamphlet-like books prepared by the teacher or the pupil. Words or letters must appear on such booklets in order for this category to be checked. Illustrations may or may not appear.

Whether the booklet is teacher--or pupil--produced is determined by the apparent "author" of the story, i.e., a story recorded and reproduced by a teacher, but dictated by a pupil, is considered pupil-produced. It might be added that teachers often assist in discriminating these two categories by announcing the author of the booklet, if it is pupil-produced.

The second major category on Level 1 of Figure 1, Display Materials, includes Charts and Boards.

Display Charts include Experience Charts which are always, of course, homemade and Phonics Charts which may or may not be homemade.

Experience Charts may be composed of words, phrases, or sentences. The pupil (s) generate these charts with some direction from the teacher. Phonics Charts deal with letters or words and are used in a manner which focuses on the sound, form, or structure of the letter or word.

Charts which cannot be classified as either Experience or Phonics charts are tallied as "other charts".

Display Boards. Any use of the chalkboard or blackboard, whether for words or pictures, is tallied under "Chalk." Any active use of a bulletin board, or materials displayed thereon, is tallied under "Bulletin."

Examples of "other boards" are flannel borads, sentence banks, etc.

Hand-held materials is sub-divided into Verbal and Non-verbal; and includes a special category, Pupil-Produced.

Hand-Held verbal materials involve cards and strips which typically contain letters, words, or pictures, and may be used in a variety of teacher and pupil activities. Other materials(such as a flannel board) may often be used along with hand-held cards and strips.

Writing Materials are such things as crayons, pens, pencils, paper, etc. when used by teacher or pupil to form letters or words, except that this category does not include chalk.

Non-Verbal materials includes three categories:

Arts, Crafts materials are distinguished from writing materials in terms of their use. A crayon used for drawing is arts-crafts material; one used for writing is writing material. On occasion, both categories will be checked for the same item, as when the pupil writes a sentence, then illustrates the topic described in the sentence. Use of modelling clay is checked here, but if the finished clay model is later used some other way, the category "object" would also be checked.

The sub-category "Object" refers to either commercial or homemade three-dimensional objects which are actually used in instruction. Globes, statues, leaves, masks, and the like would be tallied here.

"Other" hand-held objects are those hand-held objects (three-dimensional or not) which cannot be tallied elsewhere.

"Pupil-Produced" is an special category which is checked when any homemade hand-held materials are used. In such an instance, the material would be checked twice. If a picture made by a pupil were used, it would be recorded twice-under "card, strip, etc." and under "pupil-produced."

Inspection of the list of materials on the card will indicate the relationship between their arrangement and the category system just described.

Activities. In coding activities, the first discrimination to be made, at Level 1 of Figure 2, is between activities involving the teacher and activities not involving the teacher.

"Teacher" activities are sub-divided at Level 2 into Non-Interactive and Interactive.

Non-Interactive Activities include: "Reads aloud", which refers to the reading of any written material; "Talks, " which is self-explanatory; and "Illustrates, Demonstrates", which includes writing or drawing on the chalk board, showing how, and the like.

Interactive Teacher Behaviors are classified into two categories (on Level 3 of Figure 2): Oral and Non-Oral.

Oral Interactive Teacher Activities include Drilling, Asking Questions, and Answering (pupil-initiated) Questions.

"Drilling" refers to an activity in which the teacher elicits pupil responses of a vote, repetitive, mechanical type, often en masse. "Ask Question" and "Answers Question" should be self explanatory.

"Works with Individual" is checked if special attention is addressed by the teacher to one child, with the rest of the class being ignored(apparently); "works with small group" is tallied when a group containing fewer than half of the class appears to receive the exclusive attention of the teacher.

"Leads game, exercise" is tallied if (1) the game is teacher-led, and (2) is primarily of a non-cognitive or tension-release variety. If a teacher leads a song with which the pupils are familiar, one might tally this category. If the "game" is really a drill and does not seem to be fun, it is checked as a drill. If two or more pupils play a game by themselves the activity is recorded at "pupil plays game" (see below).

Very difficult discriminations or uncategorized teacher activities may be tallied under "Other."

Pupil Activities are classified at Level 2 of Table 2 into three categories: Teacher-like, Verbal, and Small-Group. Teacher-like pupil activities involve the pupil's providing some instruction or illustration to the class, with more or less close supervision by the teacher, and are classified into three sub-categories (Level 4). "Works at board, chart," is tallied when one or more pupils receive instruction at any of the various types of boards and charts. "Acts out" refers to any type of instructionally-oriented dramatization by a pupil or group of pupils.

"Reads aloud" is tallied when a pupil reads several words or sentences aloud while the others listen.

Oral Activities include Sharing, Discussing, and Dictating.

"Shares" has reference to "experience sharing," an important component of the language-experience approach to teaching. Experience sharing involves a pupil's relating a personal experience in his own language and in his own way.

"Discusses" is tallied when pupil-teacher or pupil-pupil interactions occur, all focused about a particular topic. Discussions are typically teacher-led; however, pupil responses should modify the teacher statements to some extent.

"Dictates" is tallied when a pupil relates a sequence of words, phrases or sentences, which the teacher writes down. The pupil statements should not be highly structured by the teacher; "dictates" should not be checked when the pupil is instructed to fill in the missing letter or word in a word or sentence. "Dictates" would be tallied when, for example, the teacher records a pupil story, or when she records "words about winter."

Non-Oral Non-Teacher Activities" include "Pupil Works at Seat", "Pupil Plays Game", and "Pupil Rests, etc." Seat work here refers to solitary work, not to copying down dictation or material on the chalkboard. The type of game referred to is that in which the teacher does not take part - as when two pupils play a word game. The category "Rests" includes naps, snack periods, etc.

The category "Other" is used for any pupil activity not directly involving the teacher which does not fit into any other category.

Each activity which occurs during the Static Phase of an observation period should be recorded by a check mark in the cell opposite the activity category in which it fits and under the material category in which whatever material is involved belongs. If no material is involved in the activity, the check mark is made in the colum headed NO MAT. If materials of two or more types are involved in one activity the activity is tallied twice.

If the teacher reads a story from a library book, the check is made opposite RDS ALD and under SPL BK. If the pupils are at their seats, some writing and some stringing beads, checks are made opposite WKS AT ST under WRTG MAT and ARTS, CRFTS. If the pupils take a nap, a check is made opposite RSTS, ETC and under NO MAT.

Only one check is entered in any cell on the Static side, regardless of how many behaviors that fit that cell are observed.

Detailed Procedures - Dynamic Side

The dynamic side of OScAR R differs sharply from the Static side in that during the 6 minutes in which it is used an attempt is made to record each verbal statement made by the teacher and each interchange between teacher and pupil. Figure 3 shows in schematic form the discriminations which must be made by the observer in coding verbal behavior.

The observer attends primarily to the teacher. As soon as the teacher utters a verbalization, the observer make two judgments:

(1) is the statement related to reading, to other language-arts, or to neither?

(2) does the statement get a task for an individual pupil to which he is supposed to make an immediate response?

Language Arts here means any teacher behavior whose apparent goals involve language symbols; if the symbols are visual language symbols, the verbalization is classified under Reading; otherwise, under Other Language Arts. Teacher verbal behaviors concerned with numbers, concepts related to science, art, etc., or with classroom management are classified as Non-language Arts.

The decision that the teacher's verbal behavior falls into one of these categories leads the observer to one of the three major sections of the dynamic side of the schedule.

The decision that what the teacher says does not call for an immediate pupil response identifies it as a statement; a decision that it does call for a pupil reply identifies it as an entry to an interchange.

Statements are classified into six categories according to their apparent purpose.

Motivational statements are tallied as "Positive" or "Negative". "Positive" statements are intended to increase a pupil's motivation to learn, to reduce tension; or more simply, to make him feel better. Statements which might be tallied here are: "This is going to be a lot of fun;" "Oh, that's quite alright, don't worry about that," etc.

Negative motivational statements include statements which tend to make a pupil feel bad; most of them consist of a teacher's correction or criticism of pupil behavior. Statements varying widely in degree of severity are tallied in this category. The range extends, roughly, from a neutrally-stated: "Don't do that" (when such a statement does not appear to be a procedural instruction) to punitive shouting.

Problem-centered statements fall into three types: Problem-structuring-Meaning; Problem-structuring - Form, and Exposition.

Problem-structuring statements pose a problem to the class as a group, for example,"I wonder if anybody can tell me what the first sentence says?"

"Problem-Structuring-Meaning" is tallied when the problem involves understanding or interpretation of words or sentences. "Problem-Structuring-Form" tallies represent teacher statements concerned with the form, structure, or rote repetition of a letter, word, as for example, "What is the first word on page 3?

"Exposition" is tallied when the teacher statement simply provides information to the pupuls. Story-reading or story telling by the teacher would be tallied in this category. So would explanations of how to do something.

Procedural statements are classified as Directive or Descriptive. Both involve statements about what is to be done which are empty of content; the difference between them lies in the degree to which pupil behavior is restricted. "Today we are going to read a story" is descriptive; "Open your books" is directive.

Interchange. An interchange is an episode which normally begins with a teacher question, continues with a pupil response, and ends with a reply from the teacher, usually evaluative of the pupil response. One tally is made for each interchange under the type of entry, and opposite the type of evaluation.

By the entry to an interchange is meant the question asked by the teacher which initiates the episode. Entries are classified according to the type of task set the pupil; when it involves interpretation of a word, sentence, or other symbol, so the pupil must understand the symbol in order to execute the task, the entry involves meaning; if he need only recognize the symbol, it involves form only.

This same distinction is made in classifying Problem-Structuring Statements (see above). The difference between a Problem-Structuring Statement and the task-setting behavior which opens an interchange lies in the fact that the former does not call for an immediate pupil response. It sets a problem, usually for the class as a whole; but it does not set any individual pupil the task of answering a specific question.

No tally of an interchange is made until the teacher has evaluated (or failed to evaluate) the pupil's response. Basically the teacher may either reject or accept the pupils response..

When a teacher is teaching in a manner such that responses are specified to be correct or incorrect, incorrect responses are typically rejected.

"Negative Rejection" differs from "Positive Rejection" in that the former is less gentle and friendly. The negative rejection category will receive tallies representing a considerable range in emotive tone. Harsh rejections will be tallied here, as will be a neutrally stated "No, that's not right".

A "Positive Rejection" will usually imply that there was some merit in the response, even though it was not the one sought. "No, that's not quite right," "That's very good, does anybody have another idea?".

Acceptance is indicated by such replies as "That's right" "O.K.", etc. Unless there is some praise or enthusiasm, an interchange so evaluated is tallied as "Acceptance Indicated". If the teacher says "Fine!" "That's exactly right!" or otherwise goes beyond mere feedback, the interchange is tallied opposite "Support".

Many teachers often neither accept nor reject a pupil response but go right on to ask another question. Such an interchange is tallied as "Non-evaluated".

If a teacher goes ahead after an interchange has been terminated and uses the pupil's response in some way, e.g., writes it on the board, or asks another pupil to comment- a second tally is made opposite "Use".

In general, each statement is tallied once, and each interchange once, except in this one instance of "Use" in which two tallies will appear for one interchange.

If a teacher says, "I wonder who can tell me the name of a toy", this statement would be tallied in the OLA section in the box for PRB STR MNG. If she then says, "Mary, you tell us one," this is recognized as an entry to an interchange to be tallied in the OLA section under MNG, but not tallied yet. Mary says "A doll," and the teacher replys, "Yes". How many girls have dolls at home? The tally for the interchange is entered opposite ACC IND in the OLA section under MNG, and a second tally is made in the same section opposite USE under MNG. The statement "How many girls have dolls at home?" would be tallied as a problem-structuring statement, of course, in the same section.

OScAR R

OFFICE OF RESEARCH AND EVALUATION, DIVISION OF TEACHER EDUCATION, CITY UNIVERSITY OF NEW YORK

BASAL MAT	WRK BK	SPL BK	PUP PROD	TCHR PROD	NO MAT	TCHR	CHART			BOARD			TCHR	CARD STRIP ETC.	WRTG MAT	ARTS, CRFTS	OBJ	OTHER	PUP PROD
							EXP	FV	OTHER	CHK	BUL	OTHER							
						RDS ALD							RDS ALD						
						TALKS							TALKS						
						ILLUS, DEM							ILLUS, DEM						
						DRLS							DRLS						
						ASKS QU							ASKS QU						
						ANS QU							ANS QU						
						WKS W IND							WKS W IND						
						WKS W SM GP							WKS W SM GP						
						LDS GM, EX							LDS GM, EX						
						OTHER							OTHER						
						WKS AT BD, CHT							WKS AT BD, CHT						
						ACTS OUT							ACTS OUT						
						RDS ALD							RDS ALD						
						SHARES							SHARES						
						DISCUSSES							DISCUSSES						
						DICTATES							DICTATES						
						WKS AT ST							WKS AT ST						
						PLYS GM							PLYS GM						
						RSTS, ETC							RSTS, ETC						
						OTHER							OTHER						
BASAL MAT	WRK BK	SPL BK	PUP PROD	TCHR PROD	NO MAT	PUPIL	EXP	FV	OTHER	CHK	BUL	OTHER	PUPIL	CARD STRIP ETC	WRTG MAT	ARTS, CRFTS	OBJ	OTHER	PUP PROD
							CHART			BOARD									

	S	D
M P PROJ		
SL, ST PROJ		
T P REC		
PHONO		
O H PROJ		
CAMERA		

GPG (S)		GPG (D)	
SIZE	T	SIZE	T

RMKS

DATE

TIME

11-64 D. M. Medley - Lou H. Smith

OScAR R4

RDG

STMT		INTRCHG	MNG	FM
	M+	R-		
	PRB STR MNG	R+		
	PRB STR FM	NON EVAL		
	EXP			
	DESC PROC	ACC IND		
	DIR PROC	SUP		
	M-	USE		

OLA

STMT		INTRCHG	MNG	FM
	M+	R-		
	PRB STR MNG	R+		
	PRB STR FM	NON EVAL		
	EXP			
	DESC PROC	ACC IND		
	DIR PROC	SUP		
	M-	USE		

NLA

STMT		INTRCHG	
	M+	R-	
	PRB STR MNG	R+	
	PRB STR FM	NON EVAL	
	EXP		
	DESC PROC	ACC IND	
	DIR PROC	SUP	
	M-	USE	

11-64 D. M. Medley - Lou H. Smith